MODERN PLASTICS

SEPTEMBER 1948

ward Issue • 7th Modern Plastics Competition

✓R v.26 Sept. 1948 - Feb. 1949

THE ability of Durez to *play almost any position* on your materials team is well illustrated in the heat-resistant field. From spark-plug tester bodies to vacuum cleaner housings . . . from kitchenware handles to heat control fittings . . . this group of phenolic compounds takes over the job of turning back heat.

With this property of Durez you can combine others almost at will . . . impact strength, electrical properties, water resistance, and others. Your molder will be sure to like the easy moldability of the right Durez for your job.

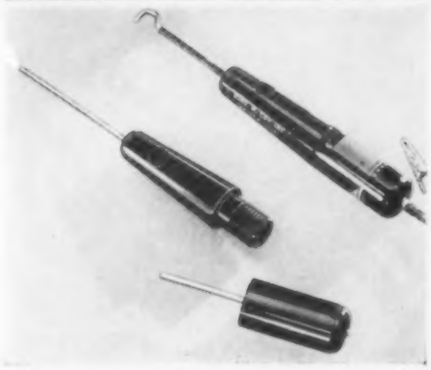
A meeting with our service staff . . . specialists in the most *versatile* of all the plastics . . . might be an excellent thing for *your* business. Our enlarged capacity and perfected quality controls can help to solve your production problems. To know each month what others are accomplishing with Durez, let us send you "Durez Plastics News".

Put DUREZ in your design to

Durez Plastics & Chemicals, Inc., 129 Walck Road, North Tonawanda, New York. *Export Agents: Omni Products Corp., 460 Fourth Ave., New York 16, N.Y.*

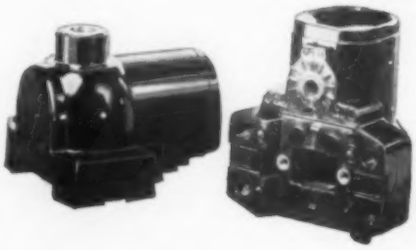
stop heat cold!

PISTOL-GRIP HANDLE



SPARK PLUG CHECKER

RE-STYLED HOOVER



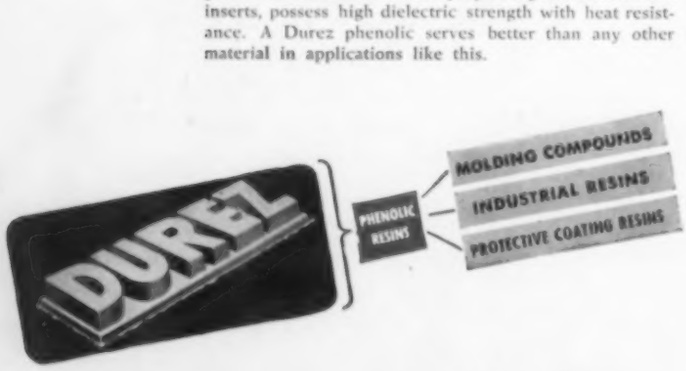
SWITCH PLUGS

PISTOL-GRIP HANDLE. The famous Revere Copper-Clad Stainless Steel saucepan sports a handle styled for smartness and comfort. Color-fast Durez keeps cool and safe...is heat-resistant...retains satin-smooth finish. Design eliminates twisting and turning in hand.

SPARK PLUG CHECKER. Mechanics' time-saver is the King McCoy Spark Plug Checker which also gives accurate scale readings of coil output, simplifies location of defective leads on contacts. Heat resistance and dielectric strength of Durez plastic body assure dependable measurements.

RE-STYLED HOOVER. One of 11 Durez parts in this modern Hoover cleaner, the motor case is molded in a heat-resistant compound with excellent electrical properties and dimensional stability. Plastics contribute to light weight, improved appearance, and ability to take abuse.

SWITCH PLUGS. Excellent moldability of heat-resistant Durez is shown in the complicated form of these one-piece transfer molded switch plugs. Plugs have molded-in inserts, possess high dielectric strength with heat resistance. A Durez phenolic serves better than any other material in applications like this.



PHENOLIC PLASTICS that fit the job

For MODERN PLASTICS Competition Winners Molded of Durez, turn to page 52.

Tech.

PARTITION BLOCKS...OF *Catalin* STYRENE

In multiples, they're more beautiful...weigh less...cost less!

As injection molded by Columbia Protektosite Co., Inc., these Partition Blocks of *Catalin* Styrene are building a colorful new place for themselves in the field of decorative design . . . are eighty per cent less-in-weight than the glass type . . . transmit light (including ultra-violet) . . . are simple to align and install (whether on a temporary or permanent basis) due to molded accuracy and interlocking rib construction. Shipment-to and on-the-job breakage factors are nil!

At present, installations are being projected for interiors. Certainly the beautifying and practical values of these polystyrene Partition Blocks will cause designers' and architects' pencils to move faster, plan better—and with little or no limitation upon *imagineering!*

All *Catalin* plastics are now entering new, highly-intensified stages of application in the building, decorative and industrial fields. You'll find it profitable to call or write our Development Division for counsel or technical data on the proper use of plastics in your next product project.

In The Seventh Modern Plastics Competition

Catalin

PLASTICS SHARED THREE AWARDS

Top Award in the Building Materials Division to Columbia Protektosite Co., Inc. for its Plastic Partition Blocks molded of Catalin Styrene.

Top Award in the Toys Division to Plastic Art Toy Corp. of America for its "Little Homemaker Doll Furniture" molded of Catalin Styrene.

Top Award in the Transportation Division to Briggs Manufacturing Co. for its durable, scuff-proof, Wood-grain Paper Laminates produced with a Catalin Liquid Resin.

MODERN PLASTICS*

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*Reg. U. S. Patent Office.

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Together - never to part

. . . *and demonstrating several of the advantages of Geon polyvinyl resins*

HERE'S a collar-liner, different from any ever made before. It promises you a *really* non-wilt collar —non-wilt not only when the shirt is new but till the shirt is worn out. The liner is made of sheeting produced from Geon polyvinyl resins in a special formulation . . . and it literally fuses with the cloth to make the collar. Textile and lining actually become one . . . and every washing and every ironing tends to make the fusion even more lasting.

So now another product reaches the market, benefits the consumer and cuts manufacturing cost, thanks to the versatility of Geon polyvinyl resins. Geon has been performing service like this in so many fields: it has made upholstery resistant to grease, wear and weather . . . has added to the beauty and wear of women's handbags . . . made the bell-cords on buses stronger . . . beautified kitchens and made curtains and tablecloths easier to keep clean. Perhaps you, like this collar manufacturer, will get new ideas from knowing Geon's many *combinable* characteristics.

Geon polyvinyl resins can be worked in almost every way, too. They can be molded, cast into sheets, extruded or used in calendering or impregnating. The color range is almost limitless. We make no finished products from Geon, but we are glad to supply information and to give help on any special problem. Write to B. F. Goodrich Chemical Co., Dept. O-9, Rose Bldg., Cleveland 15, Ohio. In Canada: Kitchener, Ontario.

Press-Fuse collar lining by J. P. Frank & Company, Inc., New York, N. Y.

B. F. Goodrich Chemical Company A DIVISION OF THE B. F. GOODRICH COMPANY

GEON polyvinyl materials • HYCAR American rubber • KRISTON thermosetting resins • GOOD-RITE chemicals

CHICAGO MOLDED PRODUCTS CORPORATION

1020 North Kolmar Avenue
Chicago, Ill.

INTER-OFFICE CORRESPONDENCE

FROM Edward F. Bachner, President

TO All Members of the CMPC Organization

SUBJECT MODERN PLASTICS COMPETITION AWARD

DATE 7/14/48

I know you will all be happy to learn that in the 7th Modern Plastics Competition, Chicago Molded has received the award in the Photographic Supplies Division -- this time, for the Stereo Realist Viewer we produced for the David White Company of Milwaukee.

Since the first Modern Plastics Competition in 1936, there has never been one in which Chicago Molded did not receive at least one award. In all, there have been seven such competitions, in which Chicago Molded earned a total of 18 awards.

Yet in many respects, this latest award is the most gratifying of all. Never before has the plastics industry been as large. Never have there been so many entries and so many entrants. Never have the various classifications been so broad and so inclusive. So there is special significance in the fact that a job produced by us was singled out to receive one of only 29 awards, from a great mass of over 1300 entries, representing the outstanding achievements of our industry.

Such an award is truly a great tribute to the efforts of every member of our organization. So, I should like on this occasion to extend the sincere thanks of the management, not only for your fine work on the Stereo Realist Viewer, but also for the conscientious effort and cooperation which have made Chicago Molded plastics known for their quality wherever plastic parts are used.

It is this type of effort and cooperation which underlies every recognition and award we have ever received, and I know that as long as this spirit continues, we shall have no difficulty in maintaining the position of recognized leadership we have so long enjoyed.

E. F. BACHNER,
President

E.F.Bachner:pbt

AWARDS IN MODERN PLASTICS COMPETITIONS

Received by

CHICAGO MOLDED PRODUCTS CORPORATION

1936	2 awards	1939	4 awards
1937	3 awards	1940	4 awards
1938	3 awards	1941	1 award
		1947	1 award

NOTE: The Stereo Realist Viewer which won the award in the Photographic Supplies Division of the 1947 competition is shown in our advertisement on page 291 of this magazine.

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LAMINATED or MOLDED

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A DEPENDABLE NAME IN PLASTICS

INSUROK is a registered trade-mark of The Richardson Company.

When it comes to serving industry through plastics, the names of Richardson and **INSUROK** command respect and attention in high places.

To our old friends, we offer assurance that past high standards of quality and materials and skilled workmanship will be zealously protected.

To new prospects, we offer an invitation—let us prove our claim that Richardson experience, talents and facilities can mean worthwhile benefits for you in meeting your plastics requirements.

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EDITORIAL

Mirrors of Progress

Twelve years ago there were four plastics materials represented in the list of winners in the First MODERN PLASTICS Annual Competition. These were phenolic, cellulose acetate, urea, and cellulose nitrate.

In the 1948 Competition awards, the most frequently mentioned plastics materials were vinyl, acrylic, polystyrene, and phenolics. Nine other plastics materials had some part in the creation of the 30 products chosen for top honors in the various divisions of the Competition.

What could be more indicative of progress? Of the 13 different plastics represented in 1948, only four were in large-scale commercial production in 1936. Vinyl, which is now the second largest in poundage, was then used only in small quantity and almost entirely as wire coating. Acrylic production had just begun; polstyrene, now the leading thermoplastic molding powder on a poundage basis, was not far beyond the status of a laboratory curiosity.

The above facts speak for themselves insofar as materials development is concerned—the industry's horizon is being constantly pushed forward by the introduction of new and improved basic materials. But that is not enough. To keep pace with its new materials, the industry must adopt new techniques, improved equipment, modernized plant layout, appropriate design to fit the characteristics of its new materials, and, above all, must establish merchandising programs to take advantage of the particular product appeal that is inherent in plastics.

Forward steps have been taken in all these departments. More efficient presses, plunger and transfer molding, electronic pre-heating, larger preforms, redesigned extruders made for plastics rather than rubber, precision fabricating, and a host of other improvements have been adopted. A more professional attitude has shown up in the appearance of skilfully designed pieces. Merchandising practice is showing indications that operators realize a product can't be sold simply by admiring their creation and saying: "Ain't she beautiful?"

But the industry can't afford the luxury of patting itself on the back and admiring its progress. There is still much work to be done in all the above categories. The purpose of the Third National Plastics Exposition and activities such as the MODERN PLASTICS Competition is to give the industry a chance to check up on its progress. Admire quietly if you will, but look sharp to find the course of improvement, watch for vital trends, be alert to customer reactions. He who fails to get inspiration from such exhibits is indeed a lost soul in a seething industry that has no place for sluggards.

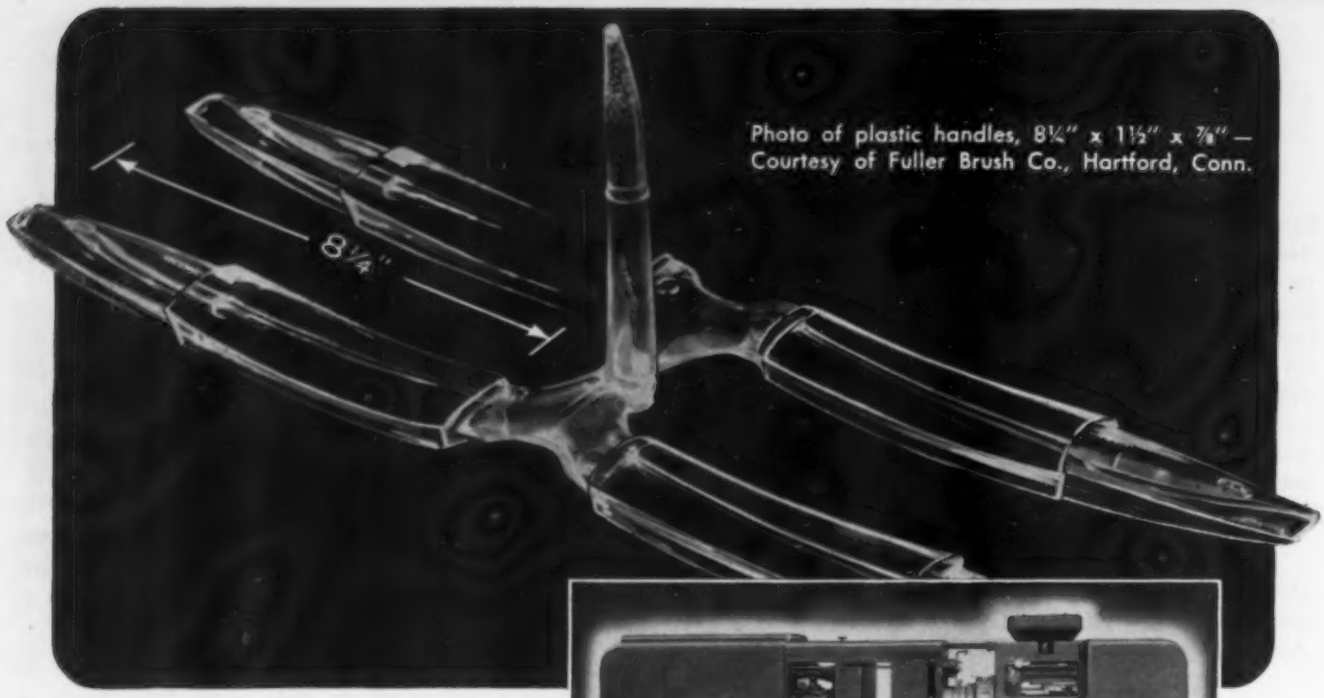
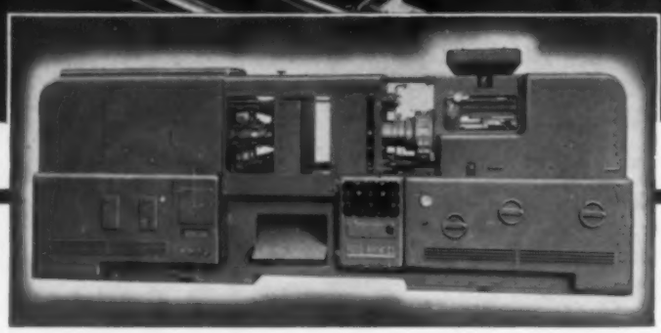


Photo of plastic handles, 8¼" x 1½" x ⅞" — Courtesy of Fuller Brush Co., Hartford, Conn.



Reed-Prentice 24 Oz. plastic injection molding machine.

Another PERFECT SHOT!

Here's a perfect example of the molders art combined with unequaled production features of the Reed-Prentice 24 Oz. injection molding machine.

These methacrylate handles for Fuller's De-Luxe Clothes Brushes are free from burned spots, due to proper plasticizing through accurate control of heat as it is applied to the material.

Control of pressure results in perfectly filled cavities without air pockets or blemishes.

Unvarying control of fixed cycling time guarantees uniformity in long run production.

High quality of this finished work resulted in immediate consumer acceptance and greater sales.

You, too, can assure quality performance . . . eliminate rejects . . . with Reed-Prentice injection molding machines. For complete information describing the entire line of 4, 8, 10, 12, 16 and 24 Oz. capacity models, write Dept. D today!

• SPECIFICATIONS •

Ounces molded per shot	24
*Maximum shots per hour	150
Pressure on material, P. S. I.	24,500
Size of die plates	30" x 30"
Mold opens	16"
Maximum casting area in mold (square inches)	210
Mold closing pressure, tons	600

*Dependent on product and mold construction

THE WORLD'S LARGEST MANUFACTURERS OF INJECTION MOLDING MACHINES

INJECTION
REED-PRENTICE CORP.
WORCESTER MASS., U.S.A.
MACHINES

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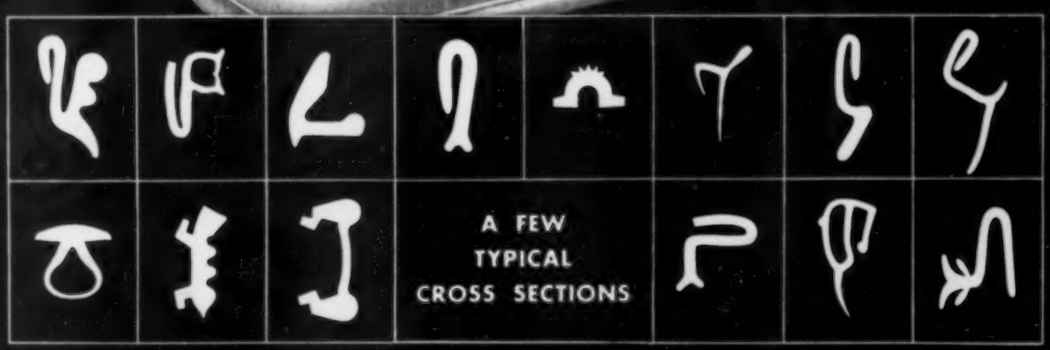
If you require pin-point accuracy in design and tolerances, consistently uniform . . . get acquainted with Yardley now.

Yardley engineers keep abreast with new materials and modern manufacturing techniques — can save you time and money by designing the right strip for your specific need.

We extrude—and fabricate—any thermoplastic material. There's an experienced Yardley representative near you. We will send him promptly.



YARDLEY PLASTICS CO.

142 PARSONS AVE. • ADams 9315 • COLUMBUS 15, OHIO

FOR *THE ELECTRICAL INDUSTRY . . .*
MANUFACTURERS OF CONSUMER GOODS . . .

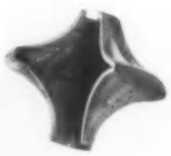
A new flame and heat LUMARITH* XF

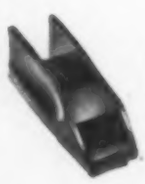
IN ADDITION TO FLAME AND HEAT RESISTANCE,

LUMARITH XF HAS THE FAMED TOUGHNESS

OF THE ACETATES . . . CAN BE FURNISHED IN COLOR

OR TRANSPARENCY . . . HAS EXCELLENT

MOLDABILITY IN THIN SECTIONS 

OR THICK SECTIONS  LARGE PARTS

resistant thermoplastic

MOLDING MATERIAL

Here's a revolutionary development in thermoplastics —a cellulose acetate molding material with the flame resistance of many thermosetting plastics!

Lumarith XF has excellent form retention, and although it is produced in the hard flows it is outstanding for lack of brittleness and molding ease. For the first time it makes possible the production of electrical parts by high speed, economical injection molding.

OR SMALL PARTS ... WITH HIGH-LUSTRE

MOLDED SURFACES — TOUCH COMFORTABLE

AND DIELECTRICALLY SAFE. LUMARITH XF HAS

HELPED TO OBTAIN UL APPROVAL

FOR MANY PRODUCTS.

A *Celanese* Plastic*

*Reg. U.S. Pat. Off.

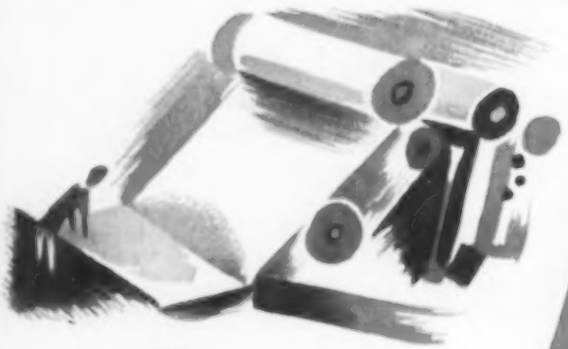
Lumarith XF is ready for product applications *now*. Your Celanese representative will supply you with the facts you need to know about this laboratory-and-field-tested-Celanese-Plastic. He will show you cases where manufacturers have switched to Lumarith XF, and are getting improved products at lower cost.

CELANESE CORPORATION OF AMERICA
Plastics Division, Dept. D-1,
180 Madison Avenue, New York 16, N. Y.

1 DESIGN

2 DEVELOPMENT

PRODUCTION



3

DECOTONE
Saturating Papers
for
Decorative
Laminates

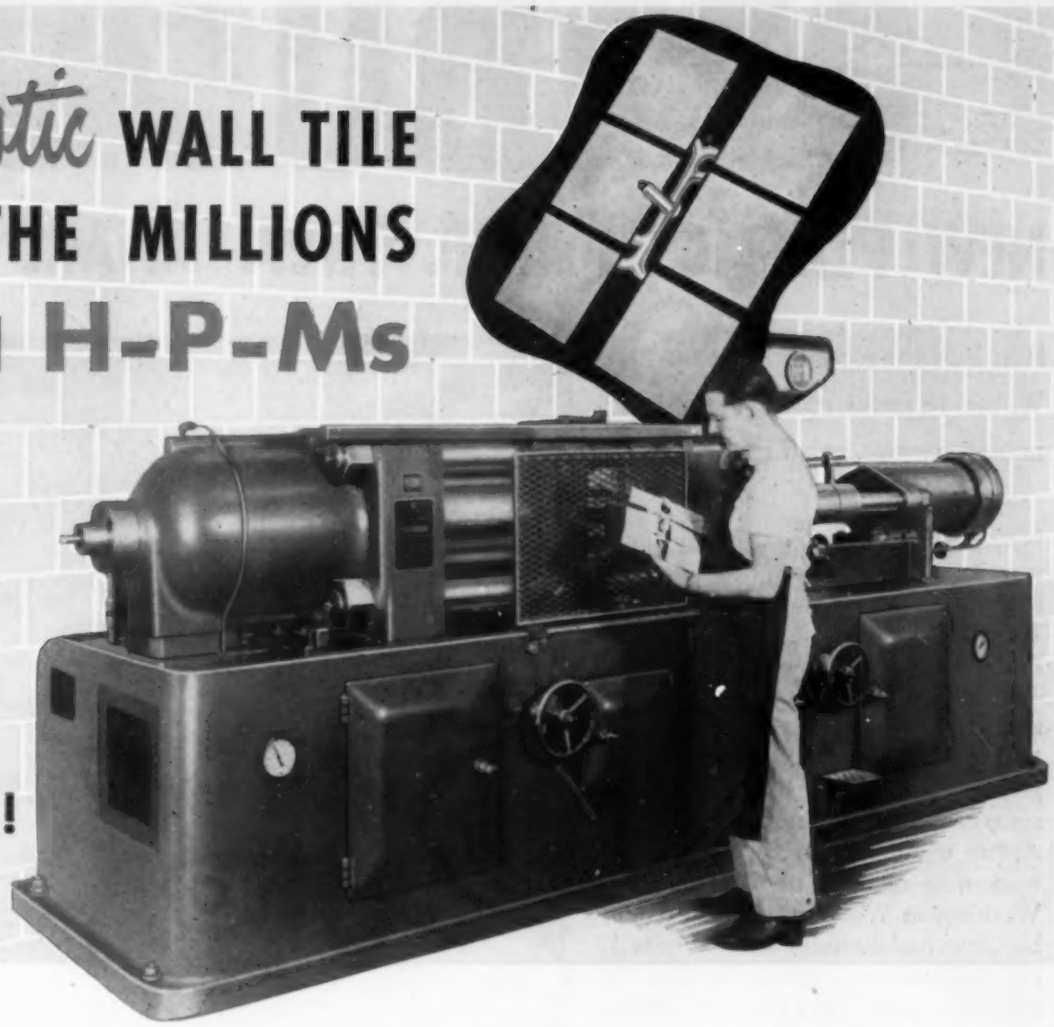
UNDIVIDED RESPONSIBILITY.

From the pulp to the finished paper DECOTONE Saturating Papers are produced under a single responsibility. As a division of the Fitchburg Paper Company, we produce the base papers in our own mills, print and process them at the Decotone plant, and thus control their quality and characteristics from beginning to end. DECOTONE Saturating Papers are proved in performance with some of the country's largest laminators. Write us for samples and consult us on your particular problems.

FITCHBURG PAPER COMPANY FITCHBURG, MASS.

DECOTONE PRODUCTS
DIVISION
Fitchburg Paper Company
Special Papers for the Plastic Industry
FITCHBURG, MASSACHUSETTS

Plastic WALL TILE BY THE MILLIONS WITH H-P-Ms



A TILE EVERY FIVE SECONDS!

A peek at the production records of the Meridian Plastics Company, along with many other molders, reveals that the H-P-M "9 oz." is tops for production of polystrene wall tile. A thirty second cycle with practically no rejects is hard to beat on this tough molding job where accuracy, color and finish specifications are extremely rigid.

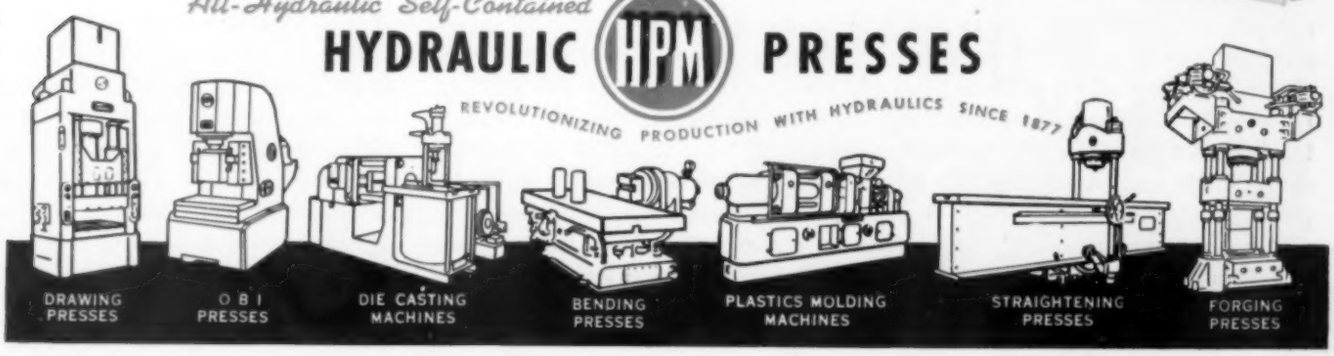
You too can capitalize on plastics. Remember . . . molding materials are plentiful, metals are in short supply. Whether you are a custom molder or one who molds his own, it's time to think about plastics in a big way. Like wall tile, there are plenty of "untapped" markets for plastics!

Built in 4, 9, 16 and 40 oz. capacities, there's an H-P-M injection machine for your molding job. They are built for stock and available for quick delivery. A nearby H-P-M engineer will be glad to call . . . or write for details today!

THE HYDRAULIC PRESS MFG. COMPANY
1010 Marion Road • Mount Gilead, Ohio, U. S. A.

Now available —*H-P-M's new Bulletin 4802 describing money saving H-P-M Injection Machines for molding thermo-plastics. Write for your free copy today!*

All-Hydraulic Self-Contained
HYDRAULIC HPM PRESSES
REVOLUTIONIZING PRODUCTION WITH HYDRAULICS SINCE 1877



DU PONT

NEW PLASTICS PLANT...NEW AWARD WINNERS

New Du Pont plant at Parkersburg, W. Va., to make nylon plastic and monofilament, polythene, "Lucite"

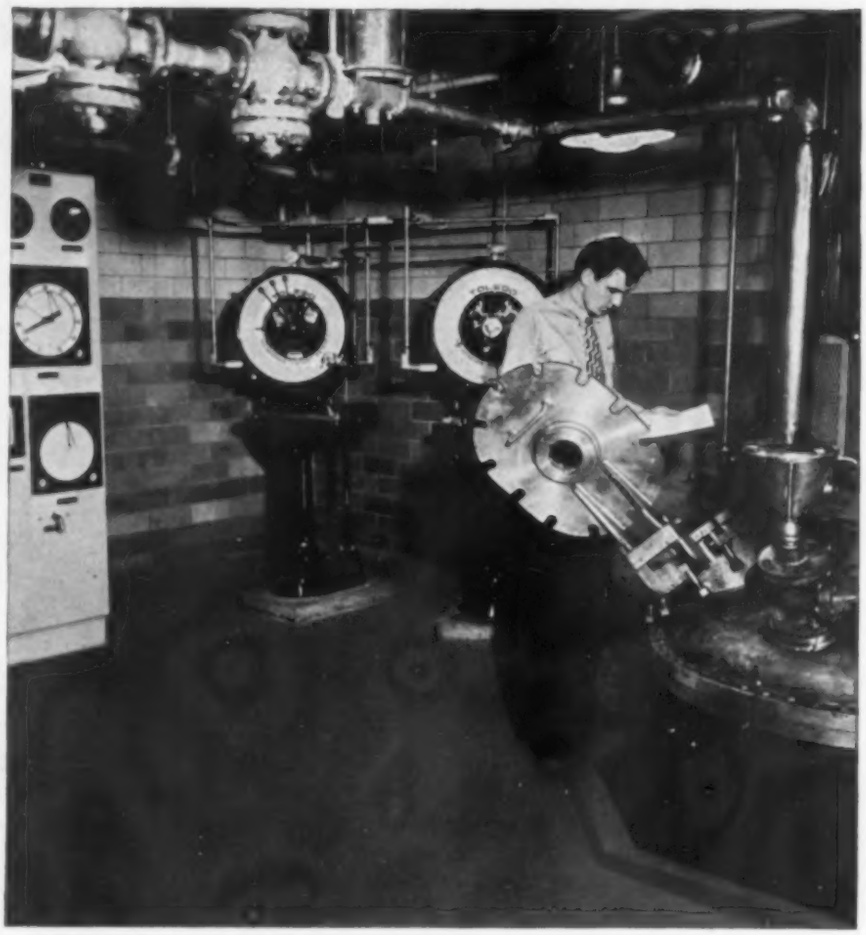
NYLON PLASTIC . . . "Lucite" acrylic resin . . . Du Pont polythene . . . are on the way in big new quantities! Du Pont's new Washington Works at Parkersburg, West Virginia, is producing more and more of these versatile plastics to meet increasing demand.

This new plant represents Du Pont's greatest single expansion in plastics since it entered the industry in 1915. About eight million man-hours of work were required to construct the Washington Works' seventeen plant buildings and manufacture and install its ultra-modern equipment. It is truly an expression of Du Pont's faith in the future of the plastics industry.

As nearly as possible, materials in the Washington Works are produced in modern straight-line processes that start with raw chemicals from tank storage and end with the plastics, packaged and ready for shipment . . . molding powders of "Lucite," polythene and nylon . . . monofilaments of nylon . . . and "Lucitone" denture material. For example, to keep chemical impurities out of the manufacture of "Lucite," the basic material (monomer) is run through a series of stills in equipment that is entirely enclosed, remotely controlled by 68 different instruments. Water is chemically purified. At other stages, the molding powders are processed in separate rooms with their own air-filtering systems and air-locks to keep out contaminants. The other raw materials are weighed and added in new, completely automatic equipment that eliminates human error.

This new plant enables nylon molding powders to be kept free of moisture until they are packaged in new-type metal moistureproof containers. It has new machinery for spinning and drawing nylon monofilament with greater uniformity—especially in the form of tapered bristles for paint brushes. It has hot-air conditioning for improving the quality of nylon brush bristles of all kinds; equipment that simultaneously winds 16 nylon filaments onto separate spools to make material for fishing lines and leaders, racket strings, surgical sutures and brush bristles; facilities for paper-wrapping bristle for easier and more efficient handling by brush manufacturers.

All production at the Washington Works is continually checked in quality-control laboratories. These and many more production methods incorporated in Du Pont's new Washington Works have been installed to assure rapid delivery of top-quality plastics for the making of better products of many different types. E. I. du Pont de Nemours & Co. (Inc.), Plastics Department, Room 369, Arlington, N. J.



Specially designed polymerization kettles in Du Pont's new Washington Works permit automatic control for more perfect processing of "Lucite" acrylic resin. In addition, automatic weighing and timing further assure constant quality of product. These are but a few of the many process improvements installed in this new Du Pont Plastics plant.

ANNOUNCES

...NEW APPLICATIONS AT PLASTICS EXPOSITION

Award winners in Modern Plastics Competition to be shown at National Plastics Exposition

Six products made with Du Pont plastics won awards in the 1948 Modern Plastics Competition. Some of them appear on this page. Look for them and many other unusual applications of Du Pont plastics at the 1948 National Plastics Exposition, Sept. 27 to Oct. 1, Grand Central Palace, New York City.

At the Exposition, you'll see new products . . . new materials . . . new equipment . . . that are representative of the rapidly growing plastics industry.

You are cordially invited to visit the Du Pont exhibit, where the properties and uses of the entire family of Du Pont plastics will be graphically portrayed. Representatives will be there to discuss these plastics as they may apply to your specific manufacturing problems.

For tickets, write to The Society of the Plastics Industry, 295 Madison Avenue, New York 17, New York.

Fascinating sales display—through crystal-clear Du Pont "Lucite." This G-E washing-machine demonstrator was one of four products made with "Lucite" that received awards in the 1948 Modern Plastics Competition. "Lucite" has clarity, strength, light weight; resists crazing, shattering, aging, moisture, most solvents. (Tub for demonstrator fabricated by Steiner Plastics Mfg. Co., Inc.)

TUNE IN! *Du Pont's famous "Cavalcade of America" returns to the air Sept. 13—NBC, coast to coast. Don't miss it!*

Rousing sales greet the Tupper Co.'s "Millionaire Line" of houseware molded of Du Pont polythene — another award winner. Polythene yields products that are light, flexible, durable, non-shatterable, non-toxic, tasteless, odorless, resistant to moisture and solvents. Polythene is used for many products, including food-packaging, garment covers, flexible bottles, ice trays, and wire insulation.

Eye-appeal for counters is this Toledo Guardian Duplex Scale with its striking, colorful name-plate of molded "Lucite." Name-plate of this award winner has a three-dimensional effect obtained with silk screening process. Weight indicator is illuminated from the rear by a strip of "Lucite," which conducts light from below. (Molders: Hoosier-Cardinal Corp., American Insulator Co.)

Flying Red Horse of Socony-Vacuum Oil Co. comes to life in sparkling, colorful, translucent "Lucite." Fabricated by Steiner Plastics Mfg. Co. for outside sign use, this product of "Lucite" was also an award winner in Modern Plastics' 1948 competition. In this application, as in many others, "Lucite," is outstanding among plastics for its unusual weather-resistance, low maintenance cost, and attractive appearance.

DU PONT
REG. U.S. PAT. OFF.
Plastics
BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY

STAMP NAMES, TRADEMARKS ON YOUR PLASTIC PRODUCTS

with the simple, easy-to-use

Kingsley

★ no skilled operators necessary
★ uniform, clean-cut stampings
★ up to 1000 impressions per hour

With the small, compact Kingsley Machine you can mark your plastic products in gold, silver or colors right in your own plant.

HOW IT WORKS — The type or die is electrically heated in the machine and stamps through a ribbon of gold or color foil making a permanent impression of unusual beauty and richness — all in one simple operation.

ADDS EYE APPEAL — The fine, precision-built features of the Kingsley insure uniform, clean-cut stampings that add value to your product.

★

RELIABLE PERFORMANCE — When you buy a Kingsley, you get a time-tested machine that has proved itself with 15 years of satisfactory service to thousands of users everywhere.

CUT YOUR STAMPING COSTS — SAVE TIME

Write us about your marking requirements. Enclose a sample or dimensions of the part to be stamped; give size of lettering or copy of design and quantities to be stamped. We'll reply by return air mail with complete information on equipment required, production speeds and total cost to you.

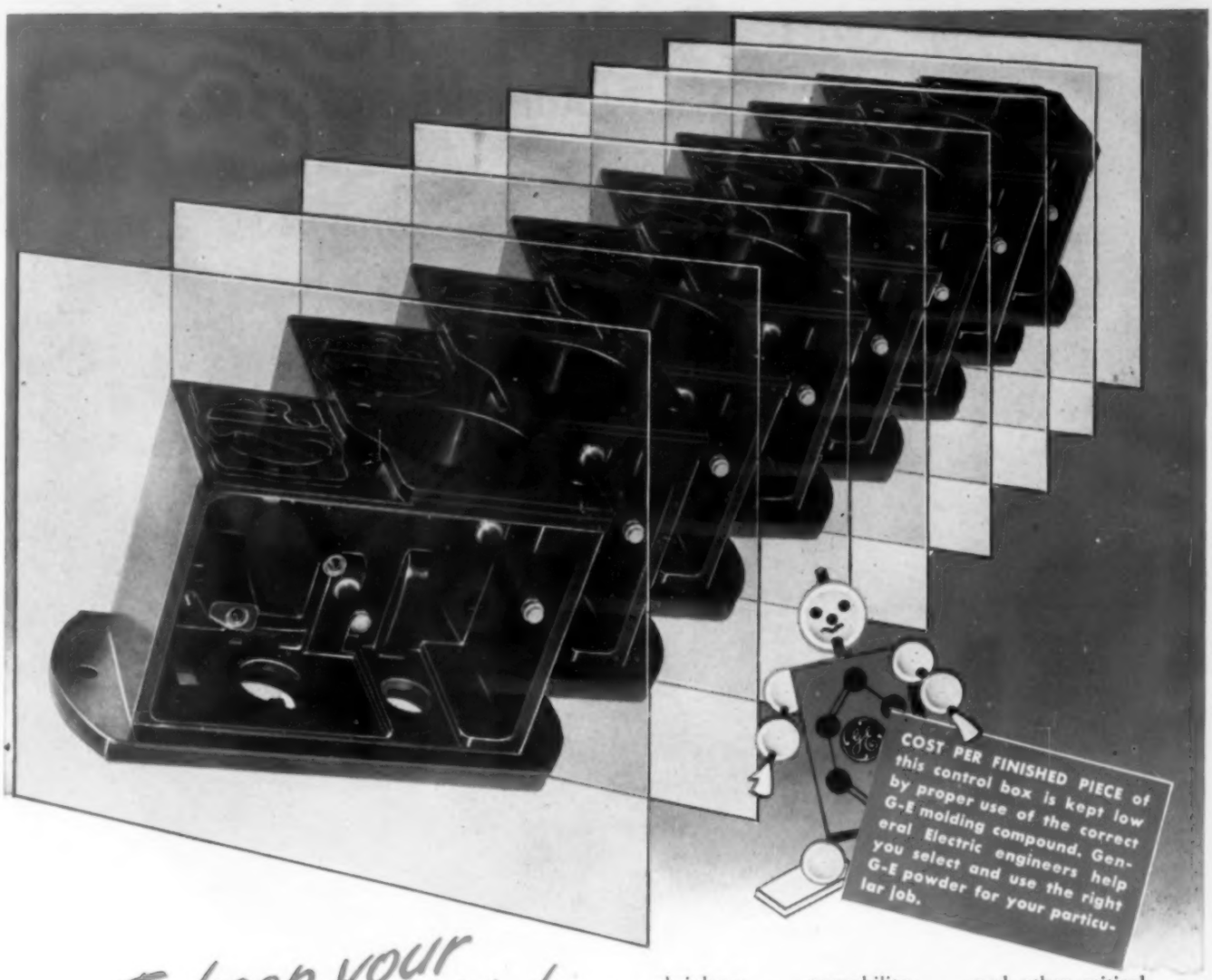
Kingsley

STAMPING MACHINE CO.

1606 CAHUENGA BOULEVARD • HOLLYWOOD 28, CALIF.

THESE ARE TYPICAL APPLICATIONS

DEPEND ON G-E MOLDING COMPOUNDS


COST PER FINISHED PIECE of this control box is kept low by proper use of the correct G-E molding compound. General Electric engineers help you select and use the right G-E powder for your particular job.

To keep your production high

The difference per unit between profit and loss on a high production plastics part is small. That's why General Electric wants you to have the one right compound for your job—the specific General Electric molding powder that gives you highest rate, smoothest flow, fewest rejects, and lowest cost.

Uniformity Protected by Quality Control

Once you find the proper G-E molding compound, you can be sure it will stay the same from batch to batch. General Electric checks *each individual shipment* for flow . . . tensile strength . . . dielectric strength . . . bulk factor . . . shrinkage . . . pourability . . . and other critical properties to keep your molding operations constant.

G-E Application Engineers Give You Technical Service

G-E engineers are ready to sit in on your problem . . . to lend an experienced hand with your molding problems. And they'll help you choose from the wide variety of G-E materials available . . . phenolic or phenol-modified resins . . . fillers of wood-flour, cotton flock, fabric, or asbestos . . . in colors or mottled effects. Or you may want General Electric to custom-tailor a special formula for you.

Write for Free Samples and Detailed Data Sheets

General Electric furnishes unusually complete information about each of its compounds. You get the results of extensive laboratory tests. Then you are given reports of actual service trials. Write for technical information to *Section DX-9, Compound Division, Chemical Department, General Electric Company, Pittsfield, Mass.*

GENERAL ELECTRIC

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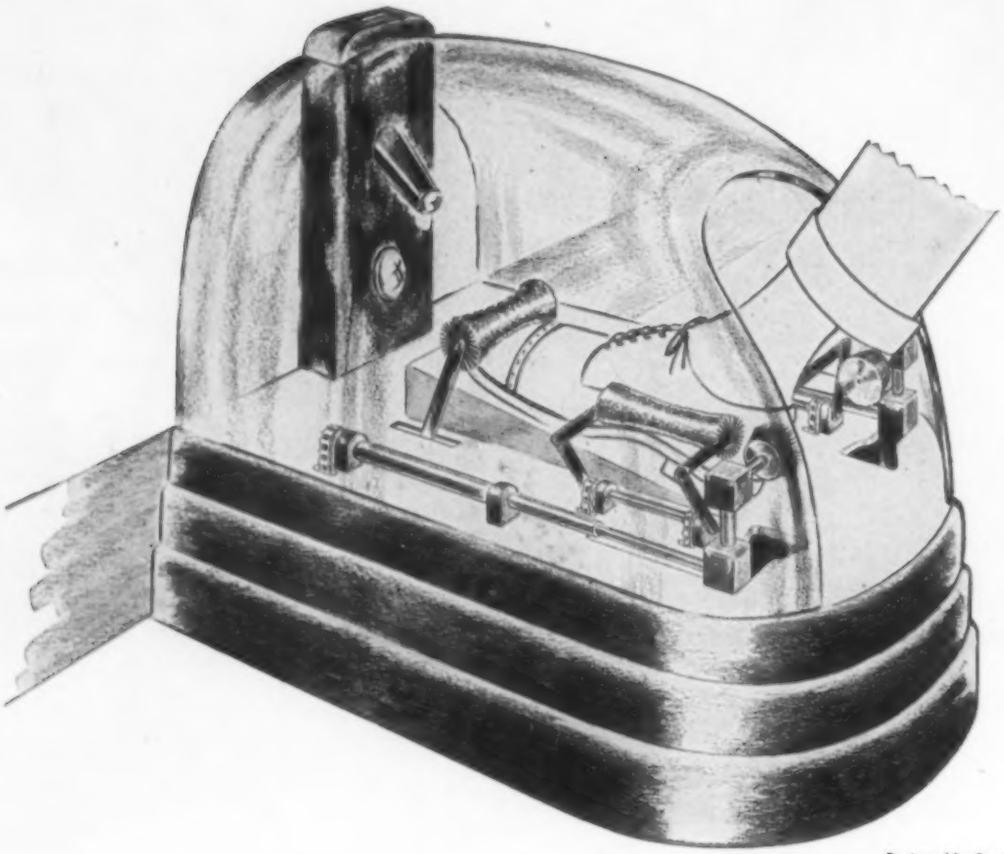
ELECTRONIC SHOE-SHINE

TO REPLACE THE BOOTBLACK ?



Designed by Product Technicians Inc.

● Somewhere in the future there's a mechanical shoe-shining unit with an electronic "eye" to select the applicator impregnated with the required polish. When, and if, it goes into production, Auburn engineers will help decide whether it is a job for plastics . . . and the best plastic material for the job.

If you have a product that might be made better with plastics, consult Auburn now. Seventy-two years of molding all types of plastics is your guarantee that an Auburn-molded job is technically correct . . . delivered on time . . . at reasonable cost.

Auburn Button Works, Inc., 600 McMaster St., Auburn, New York.

COMPRESSION, TRANSFER AND INJECTION MOLDING • AUTOMATIC ROTARY MOLDING FOR MASS PRODUCTION • EXTRUDED VINYL OR ACETATE TUBES AND SHAPES • MOLD ENGINEERING AND COMPLETE MOLD SHOP.

MOLD MARK

Auburn Engineered Plastics

Auburn Button Works, Inc.

MOLDERS SINCE 1876 • AUBURN, NEW YORK

OFFICES: NEW YORK AND CHICAGO, *REPRESENTATIVES:* NEW ENGLAND, PHILADELPHIA, CLEVELAND, DETROIT, SAN FRANCISCO

What could be FINER?

Check these features and you be the Judge

DE MATTIA ALL-HYDRAULIC HORIZONTAL INJECTION PRESSES

Here's why

- ★ SOLID STEEL FRAMES FOR MAXIMUM STRENGTH AND RIGIDITY.
- ★ STRAIGHT HYDRAULIC CLAMP PRESSURE OF OVER 400 TONS EMPLOYING A STANDARD 1000 PSI HYDRAULIC SYSTEM.
- ★ HARDENED AND GROUND PLATEN GUIDES WITH GIBS TO TAKE UP FOR WEAR WITHOUT DISMANTLING.
- ★ PUSH BUTTON CONTROL FOR FORWARD AND REVERSE MOTION OF INJECTION RAM.
- ★ CONTROLLED SNUBBER ACTION ON BOTH MOVEMENTS OF CLOSING PLATEN HELPS PROTECT MOLD FACES AND ALSO ADJUSTS SPEED OF EJECTOR MOVEMENT.
- ★ MOLD OPENING CAN BE SET TO MINIMUM REQUIRED FOR FAST MOLDING CYCLES.
- ★ CONTROLLED PRESSURE AND SPEED ON INJECTION RAM.

SPECIFICATIONS

DE MATTIA 12 OUNCE* ALL-HYDRAULIC PRESS MODEL C 1

Material per Injection—12 ozs. (Styrene) • Plasticized Material per Hour—130 lbs. • Feed Hopper Capacity—60 lbs. • Pressure on Material—22,500 PSI • Mold Closing Pressure—400 Tons • Max. Mold Size—18" x 25" • Max. Daylight—32" • Min. Die Space—8" • Max. Stroke—24" • Oil Pump Capacity—60 GPM @ 1000 PSI, Max. • Motor—30 HP • Complete Injection Time, Max.—3.3 Secs. • Injection Stroke Time, for Filling Mold—3.0 Secs. • Height of Machine, Overall—72" • Floor Space Required—172" x 42" • Approx. Weight—8½ Tons.

*Specifications on other capacities furnished on request.

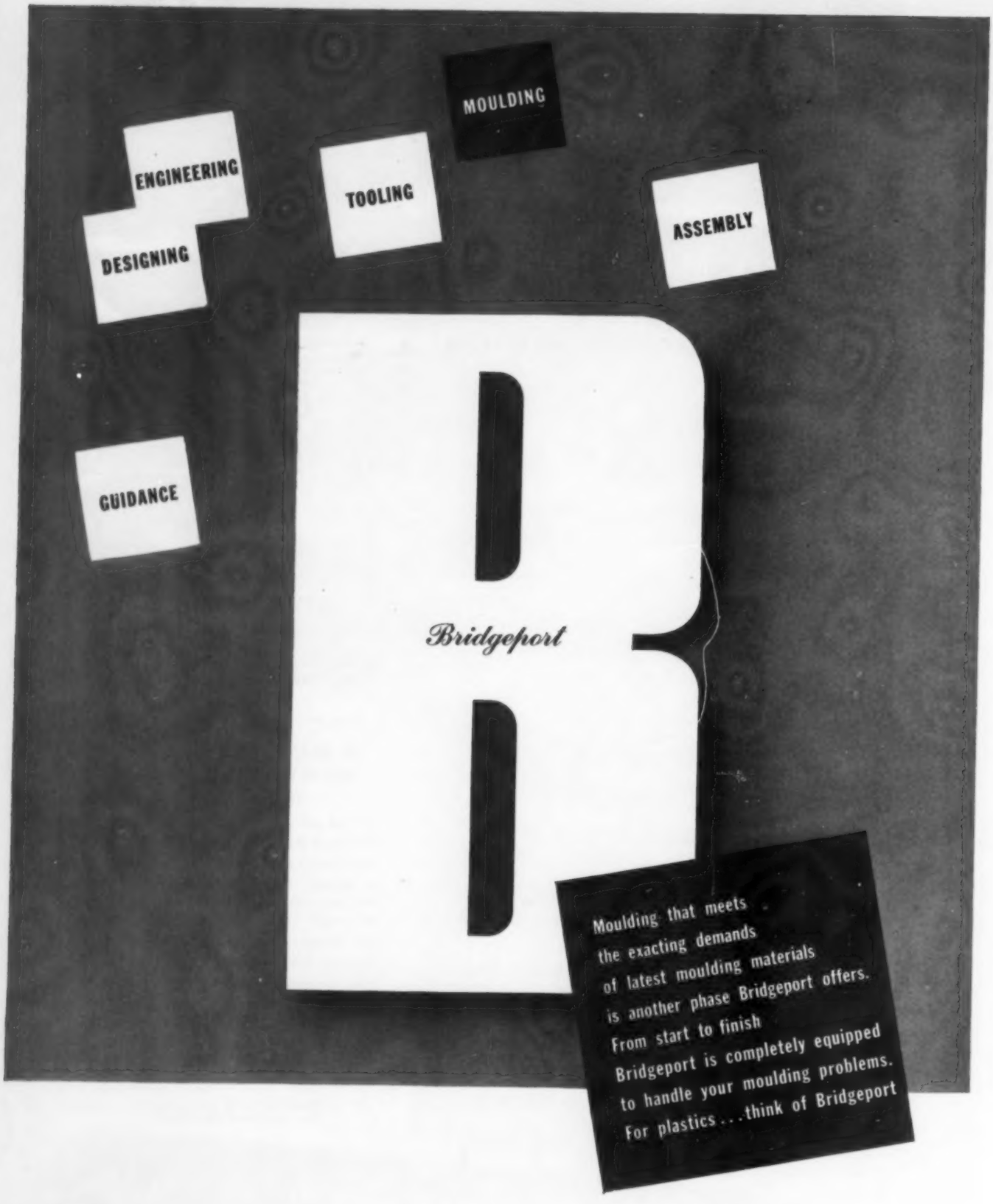
DE MATTIA MACHINE and TOOL CO.

DE MATTIA MACHINE AND TOOL CO.

CLIFTON • NEW JERSEY

NEW YORK SALES OFFICE 50 CHURCH ST. — CABLE ADDRESS BROMACH, N. Y.

INJECTION PRESSES • SCRAP GRINDERS • MOLD MAKING



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BRIDGEPORT CONNECTICUT

Heavy-duty Mills, in all sizes up to 84 inches, featuring extra heavy construction, smooth operation, and long life.

Laboratory Mills furnished with built-in motor, control and adjustable speed drive. Entirely enclosed ready to operate. Mechanism is readily accessible.

QUICK PROFITS with EEMCO'S QUICKER DELIVERY

42—ton Laboratory Presses, entirely self-contained, equipped with 12"x12" platens, occupying floor space of only 14"x26". Has adjustable opening.

Presses for compression, transfer molding, laminating, and polishing. All sizes and types. Custom built.

TO INCREASE PRODUCTION — and therefore profits — you should choose EEMCO. Here is a line made in a factory with more than 30 years experience in Rubber and Plastic machinery. EEMCO operates its own modern foundry and machine shop, and has every facility including a large stock of motors, controls, and necessary component parts to insure quick delivery. Choose EEMCO for correct design and sturdy dependability. Built for heavy duty and long life, EEMCO saves time and money. Currently, EEMCO is making exceptionally fast deliveries. Write today for quotations.

- MILLS
- PRESSES
- CRACKERS
- WASHERS
- CALENDERS
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EEMCO — ERIE ENGINE & MFG. CO.

953 EAST 12th ST., ERIE, PENNA.

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When at the NEW YORK PLASTIC SHOW Visit the PERMANENT DISPLAY of

Waterbury

Molded Plastics

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Creative Service in Product Development

Research, Design, Engineering and Merchandising Counsel

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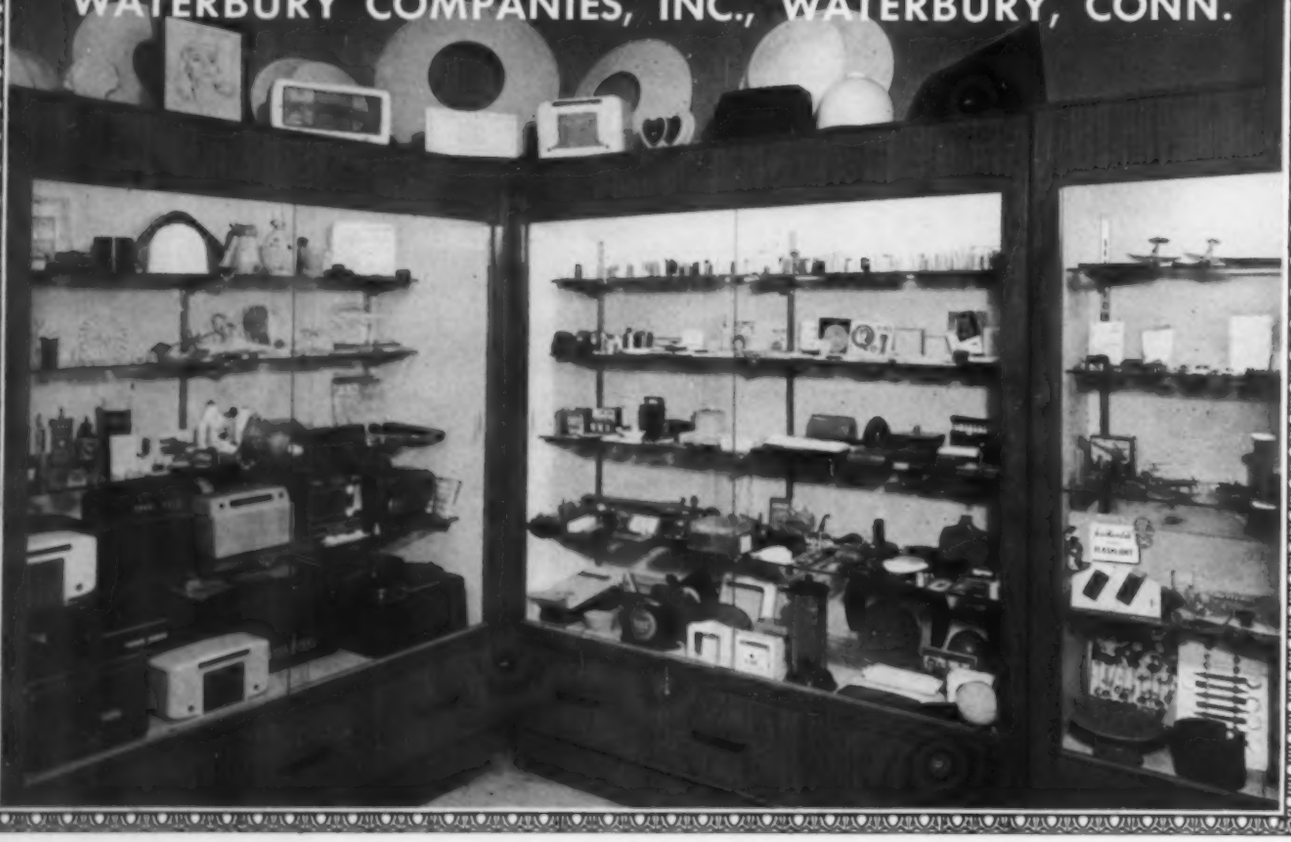

WINNERS HAVE WHAT IT TAKES

Nixon Cellulosic Plastics have what it takes . . . a combination of Durability and Flexibility, two qualities essential to a plastic material. A Nixon Cellulosic Plastic is tough enough to stand up under hard service and yet flexible enough to meet the varying requirements found in different applications. It is practical and economical to use . . . easily shaped and fabricated. Consider one of these Nixon Cellulosic Plastics for your next molding or fabricating job . . . Nixon C/N (Cellulose Nitrate), available in sheets, rods, and tubes . . . Nixon C/A (Cellulose Acetate) and Nixon E/C (Ethyl Cellulose), available in sheets, rods, tubes, and molding powder. Write today for your copy of the Nixon catalog.

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DURITE

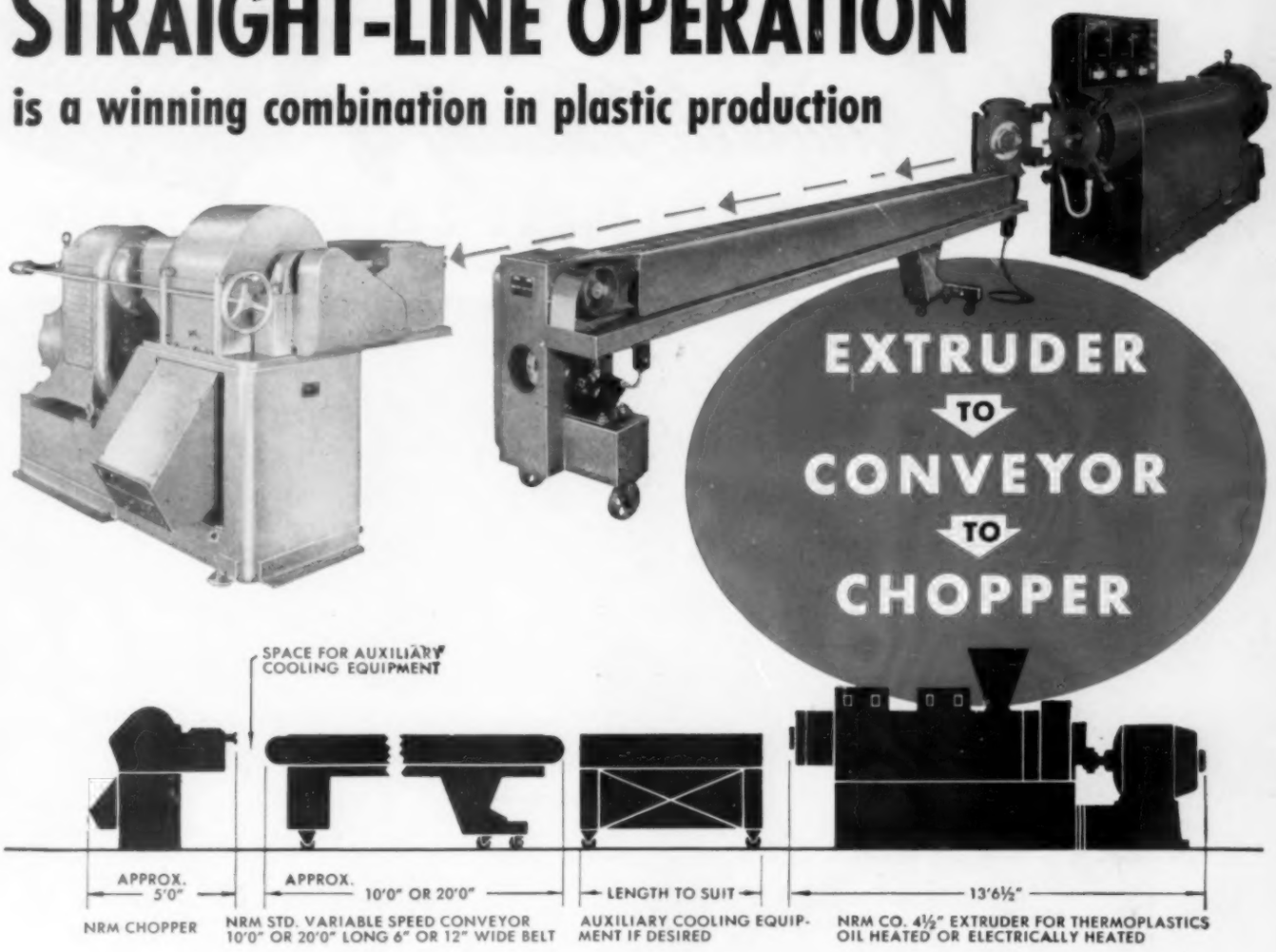
Our heartiest congratulations to Pratt, Read & Company on taking a top honor in the 1948 Modern Plastics Competition with their entry, Piano and Organ Sharps—And similar felicitations to Shaw Insulator Company on their skill in transfer molding these award winners in the Musical Instruments Group at low cost from a DURITE General Purpose Phenolic Compound.

THE BORDEN COMPANY
Chemical Division
5000 SUMMERDALE AVE., PHILA. 24, PA.

This NRM triple-unit TEAM used in

STRAIGHT-LINE OPERATION

is a winning combination in plastic production



TAKE a straight-line short-cut to greater plastics profits!

These 3 NRM Units—4½" Extruder, Universal Type Takeoff Conveyor and Heavy Duty Chopper—combined for straight-line production—can put *your* plastic processing on a more profitable basis.

The integrated operation of these NRM machines, functioning as a single unit, provides a smooth, continuous flow of thermoplastic materials from basic stock to finished pellets of *pre-determined* size and shape.

The many outstanding features of each NRM unit in this synchronized team assure maximum production of exceptionally clean, uniformly mixed stock, processed under proper temperature control and discharged in the form of plastic pellets for molding or extrusion compounds. Several NRM 3 unit combinations are available for large or small production requirements. Write today for detailed data on NRM straight-line operation.

YOU ARE CORDIALLY INVITED to visit the NRM Booth, Number 304, during the National S.P.I. Convention, September 27 to October 1, in Grand Central Palace, New York City. ALSO, a new NRM 1½" All-Electric Extruder will be on display at the Anchor Plastics Exhibit. It will pay you to see it.

NRM

NATIONAL RUBBER MACHINERY CO.

General Offices: AKRON 8, OHIO

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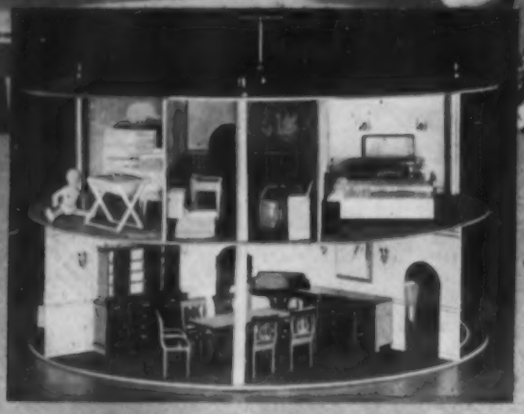
For the Engineered Beauty of **Columbia PLASTICS**

AWARD

IN

Toys



"Little Homemaker" Furniture Engineered and Molded by COLUMBIA for PLASTIC ART TOY CORPORATION OF AMERICA

Unbelievably realistic, these perfect little miniatures are styled in beautiful taste.

Some pieces actually show a woodgrain effect. Others feature precisely-fitted moving parts.

All combine the finest features of modern plastics — they're strong, non-breakable, sanitary . . . and finished without a rough edge anywhere.

Once again, these two awards in widely separate fields show the versatility and imaginative engineering of COLUMBIA PLASTICS.

...Two Awards

MODERN PLASTICS COMPETITION

IN

Building Materials

COLUMBIA PLASTIC PARTITION BLOCKS

with special interlocking ribs

A new world of possibilities in interior decoration has been opened up by Columbia Plastic Partition Blocks. Richly colorful and beautiful, these strong molded plastic blocks are adaptable to every modern mood and taste.

They introduce the interlocking rib, which locks invisibly behind the adjoining block and makes rigid assembly a high-speed operation. One-fifth the weight of glass blocks, injection molding makes them especially accurate and uniform. They can be shaped and cut with a saw.

Made in both transparent and opaque faces, these new blocks offer the decorator a great variety of colors and designs. They admit an unusual amount of ultra violet light. In sound transmission, they are similar to glass.

Columbia Plastic Blocks make an exceptionally strong, durable structure of lasting beauty. They are recommended especially for recreation rooms, waiting rooms, hallways, counters, displays, store and office partitions.

COLUMBIA PROTEKTOSITE COMPANY, INC.

CARLSTADT, NEW JERSEY

announcing UNICOLOR

REVOLUTIONARY NEW PLASTICS COLORANT

Insures absolute color uniformity • Prompt delivery on all standard colors

Saves you 3 to 4c per pound on colored plastics

UNICOLOR is a newly developed material that colors vinyl, geon and polyethylene extrusion materials as effectively and uniformly as can be done by resin manufacturers. UNICOLOR makes it possible for you to buy plain uncolored resins at low carload lot prices, then color them yourself at savings of from three to four cents per pound. Moreover, by stocking small quantities of UNICOLOR in selected shades you never need to hold up production to wait for factory-colored resins.

WHAT UNICOLOR IS

UNICOLOR is a blend of pure concentrated colors dispersed in plastic resins. When mixed with uncolored plastics in the cylinder of an extruder, UNICOLOR fuses completely, actually forms a molecular bond with the plastic.

WHY UNICOLOR IS REVOLUTIONARY

It's revolutionary because it does *not* affect the physical or chemical properties of the plastic with which it is used. It does *not* interfere with normal extrusion rates. It does *not* produce "blisters" and blemishes on the surface of extruded products. It cannot rub or wash off. It does *not* produce mottled or streaked coloration in the plastic. It does not and cannot clog screens. Unlike dry powders. UNICOLOR does not fly around your plant and does not contaminate other machines.

AVAILABLE IN ALL COLORS

You can obtain UNICOLOR in all standard colors . . . and all are carried in stock for immediate delivery. Special colors can be matched, compounded and delivered quickly.

EASY TO MIX

Mixing can be performed by any operator without special equipment. Moreover, coloring and extrusion are simultaneous. Hence you never need prepare more colored material than you actually need for the job to be done! One simple weighing and the right proportion of pigment to uncolored plastic is obtained.

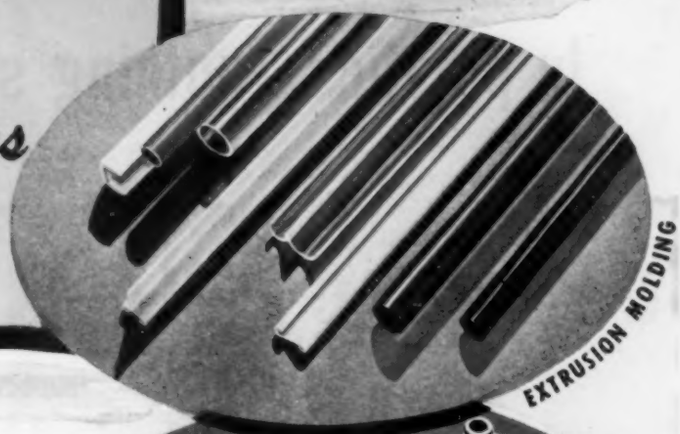
WRITE NOW FOR DETAILS AND SAMPLES

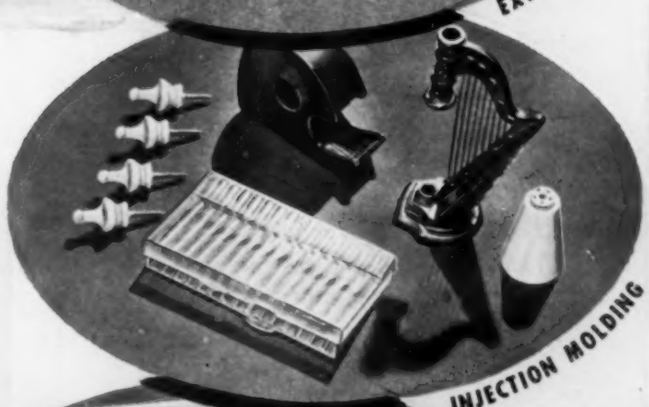
Because UNICOLOR means so much to you in terms of faster, lower cost production you should familiarize yourself with the complete UNICOLOR story now. That's why we suggest that you write today for details, free samples, and prices. Address your inquiry to UNICOLOR DIVISION, Westchester Plastics, Inc., 326 Waverly Avenue, Mamaroneck, New York.

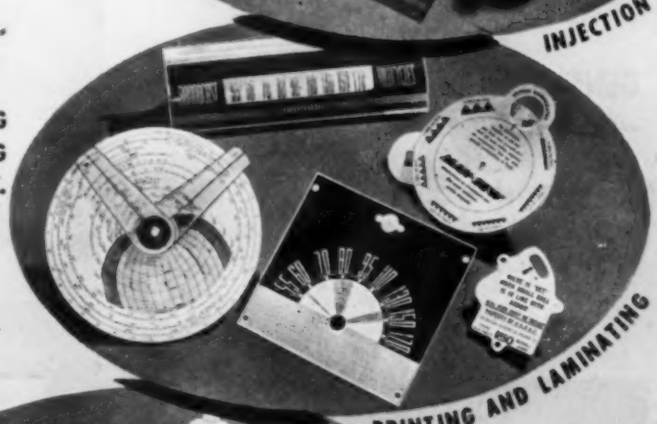
Westchester PLASTICS INC.

CUSTOM COMPOUNDERS OF THERMOPLASTIC MATERIALS

LET THIS *Pioneer in Plastics* SUPPLY YOUR EVERY NEED







Founded 55 years ago, Hopp always has been a pioneer in every phase of modern plastic development. We saw the industry born, and have contributed, year by year, to its advancement. From design to finished product, we can supply your every need.

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All These Complete Facilities . . .
On Our Own Premises:

EXTRUSION MOLDING . . . INJECTION MOLDING . . . PRINTING . . . LAMINATING . . . DIE CUTTING . . . FORMING . . . FABRICATING . . . ETC.

Our Technical Department invites your inquiries on Plastic problems.

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See us at Booth No. 332 at The 3rd National Plastics Exposition at Grand Central Palace, Sept. 27 to Oct. 1.

PIONEERS HOPP *in* PLASTICS

HOPP PLASTICS *a division of* **THE HOPP PRESS, Inc.**

460 West 34th Street, New York 1, N.Y.

ESTABLISHED 1893 — OUR 55th YEAR IN BUSINESS

In plastics -- nothing succeeds like success!

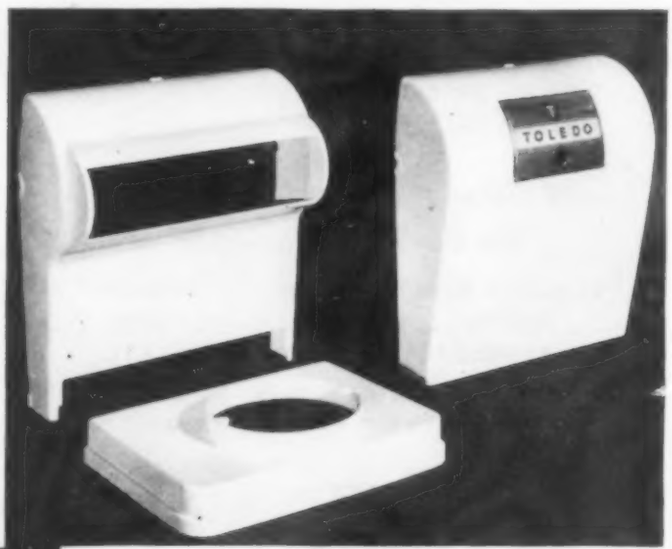
See these GENERAL AMERICAN Successes at Booth 90

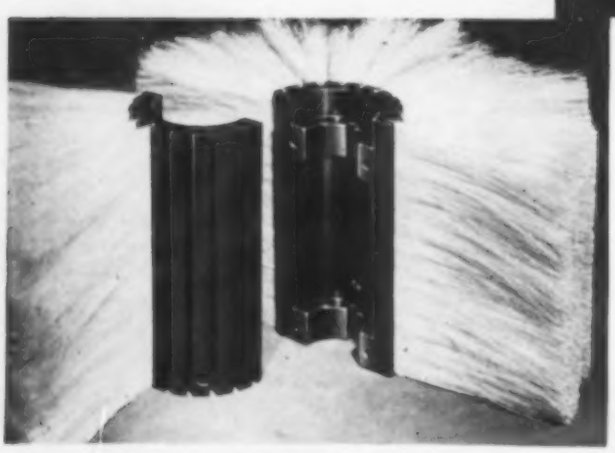
(National Plastics Exposition)

✻

TOLEDO SCALE required:
Tools that would last 10 years—four major plastic parts for retail store scales ...

GENERAL AMERICAN DELIVERED
—AND THE TOLEDO GUARDIAN #70 DUPLEX SCALE, MOLDED BY GENERAL AMERICAN, WON TOP AWARD IN THE STORE AND BUSINESS SECTION OF THIS YEAR'S *MODERN PLASTICS* COMPETITION!





✻

WHITING CORPORATION wanted:
A strong, low-cost, lighter-than-metal plastic brush holder...

COOLERATOR said:
"We need a lighter weight unbreakable drip-pan for our refrigerator."

✻

SERVEL asked:
"Can you mold plastic breaker strips up to 31 inches long?"

MOTOROLA needed:
2-piece radio-phonograph cabinets — in quantity — in a hurry...

GENERAL AMERICAN DELIVERED!

MAYTAG asked:
"Can you deliver plastic washing machine agitators in carload lots?"

In every industry, in every business, some of the biggest names turn to General American for quick, economical solution of their plastics problems. Booth 90 exhibits show how the Plastics Division solved some of these problems through expert design and engineering, and through use of the most modern equipment available. Plant facilities include injection presses up to 32 oz. capacity and high speed compression presses up to 2000 tons (71" x 74" platen areas). When you come to General American, you benefit from more than 40 years of precision production experience.

PLASTICS DIVISION
GENERAL AMERICAN
TRADE MARK

PLASTICS DIVISION

NEW YORK
10 East 49th Street

GENERAL AMERICAN TRANSPORTATION CORPORATION
135 South LaSalle Street Chicago 90, Illinois

LOS ANGELES
Richfield Building

KUX

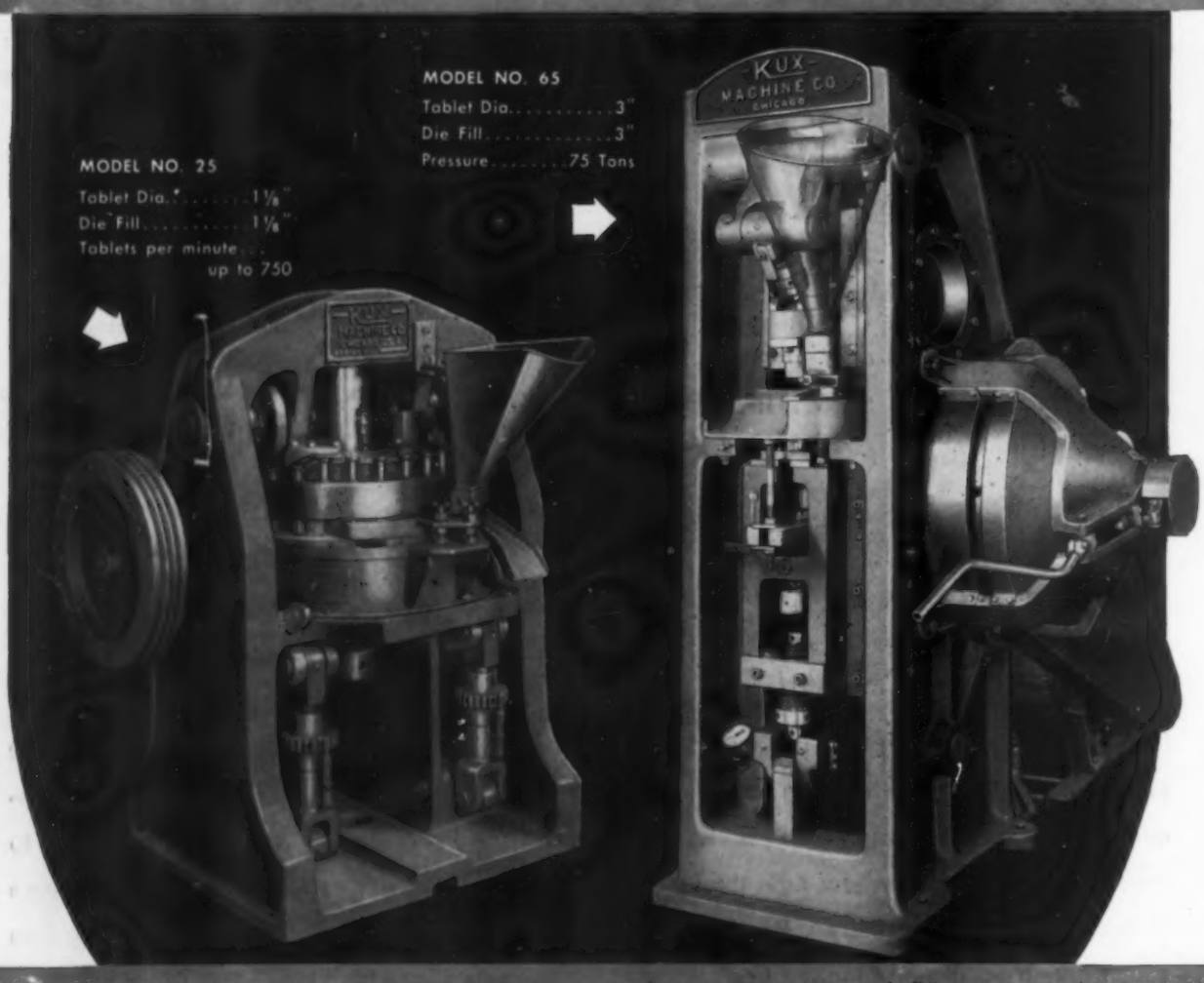
HIGH SPEED PREFORM PRESSES

PREFERRED

YES, for high speed automatic production of dense hard preforms, Kux Preform Presses are **PREFERRED** by plastic molders from coast to coast. One of the most widely used models, the new massive Kux "65" produces preforms 3" diameter, has a 3" die fill and applies 75 tons pressure at top efficiency. Designed so that pressure is applied by both top and bottom punches, the Model "65" turns out solid dense preforms which have less tendency to break or crumble during handling. For extra high production of preforms, Model No. 25 Rotary will produce up to 750 tablets of 1⅛" diameter a minute. Complete size range of machines in both single punch and rotary punch models is available. *Write for illustrated catalog.*

MODEL NO. 25
Tablet Dia.*.....1⅛"
Die Fill.....1⅛"
Tablets per minute....up to 750

MODEL NO. 65
Tablet Dia.....3"
Die Fill.....3"
Pressure.....75 Tons

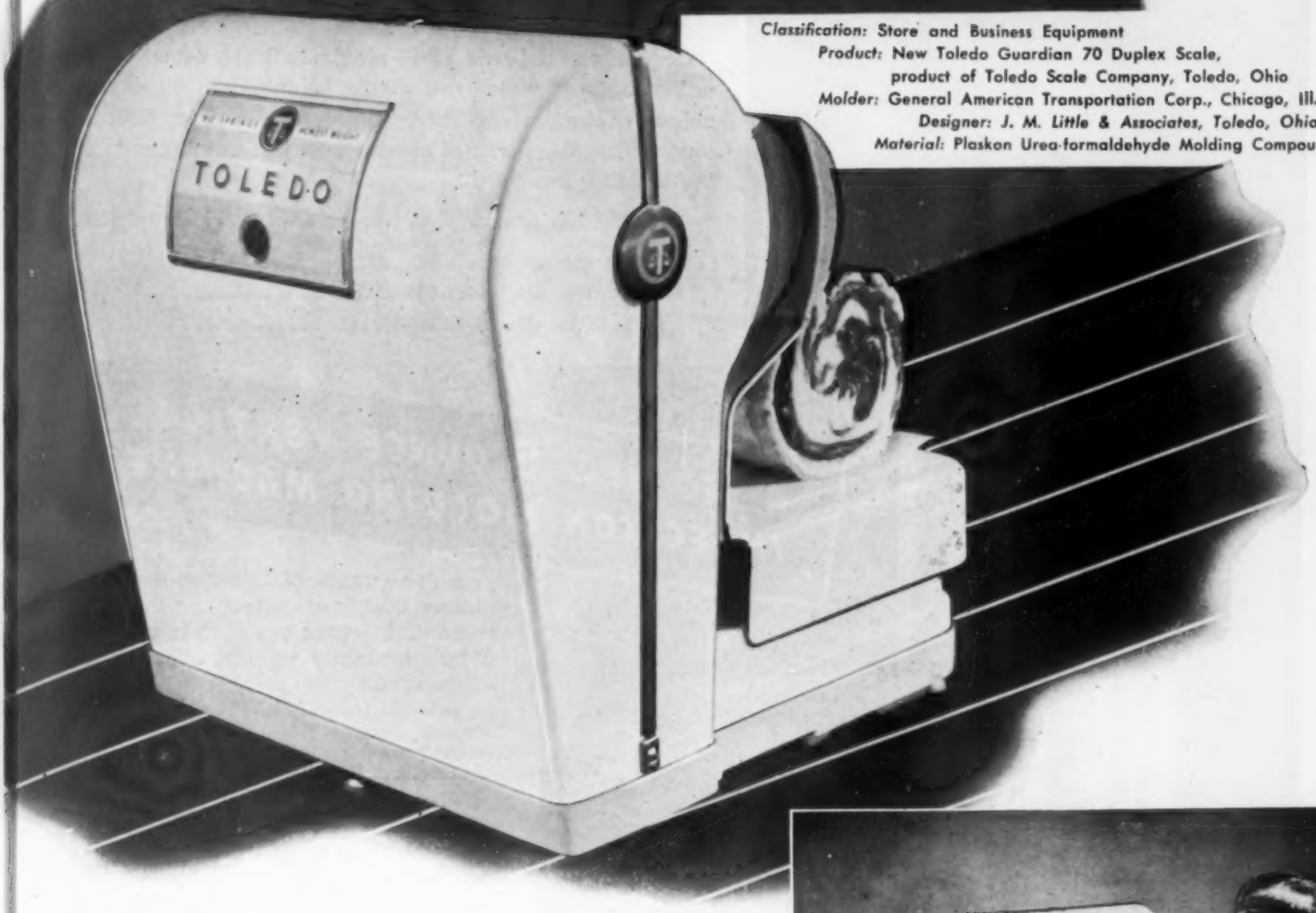


KUX MACHINE COMPANY
3926 W. HARRISON STREET • CHICAGO 24, ILLINOIS

First Award

SEVENTH MODERN PLASTICS COMPETITION

Classification: Store and Business Equipment
Product: New Toledo Guardian 70 Duplex Scale, product of Toledo Scale Company, Toledo, Ohio
Molder: General American Transportation Corp., Chicago, Ill.
Designer: J. M. Little & Associates, Toledo, Ohio
Material: Plaskon Urea-formaldehyde Molding Compound



BEAUTY . . . the modern, prize-winning appearance of this handsome Toledo Guardian 70 Scale was accomplished through the adaptability of Plaskon Molding Compounds to design requirements.

STRENGTH . . . the high strength-weight ratio of Plaskon Molded Color gives this scale ample ruggedness without excessive and useless poundage.

SANITATION . . . the gleaming, non-porous surface of Plaskon Molded Color is easily kept clean, and does not of itself support bacteria or fungus growth. And just as important —it always *looks* clean and sparkling.

Experienced Plaskon field men will help you adapt Plaskon urea- and melamine-formaldehyde molding compounds to your manufacturing and merchandising needs.

Plaskon Molded Color is a sales-stimulator. It is available in a range from transparent natural and pure white through the pastels and brilliant hues, to jet black.*

* Reg. U. S. Pat. Off.

PLASKON DIVISION • LIBBEY • OWENS • FORD GLASS CO.
2112 Sylvan Avenue • Toledo 6, Ohio
In Canada: Canadian Industries, Ltd. • Montreal, P. Q.

PLASKON
TRADE MARK REGISTERED
MOLDED COLOR

Announcing

A NEW *HIGH SPEED* VERTICAL INJECTION MOLDING MACHINE

Giddings and Lewis TP-10 machines have several valuable features which are not to be found in other machines of similar capacity. These good design characteristics are the result of careful attention to the needs of the molding industry.

The TP-10 is designed to handle especially large dies.

Clear die space ----------17¼" x 21¼"
Minimum die thickness ----------6"
Maximum die thickness ----------15"

A BIG NEW 5 OUNCE VERTICAL INJECTION MOLDING MACHINE

Positive control of injection speed is obtained without affecting injection pressure. Injection pressure is controlled independently without affecting injection speed.

Maximum injection pressure with 2" diameter injection plunger ----------20,000 psi
Injection plunger speed (adjustable downward) ----------from 116" per minute, maximum

The quiet-running TP-10 is provided with micrometer adjustment of the heating cylinder to permit close control of nozzle pressure against the sprue bushing. This adjustment also permits rapid purging of the heating cylinder.

Two machines, right and left hand, may be placed on 36" die platen centers, making for ease and simplicity of operation for one person. With staggered or unequal cyclic times, one operator can work smoothly with a minimum of lost motion and idle time.

Maximum number complete cycles per hour--425

YOU ARE CORDIALLY INVITED

To see these new G&L Vertical Injection Presses in operation at Booth 13-14, National Plastics Exposition, New York. Learn how these profit producing features will help you.

G&L

PLASTICS DIVISION GIDDINGS & LEWIS MACHINE TOOL COMPANY

FOND DU LAC, WISCONSIN, U. S. A.

VARCUM C 86
with
RUBBER

A phenol-formaldehyde resin in powder form, recommended for use in rubber compounds to give added abrasion and wear resistance.

Specifications:

Color		pink powder
Softening point	VTP 1-c	60° — 66°C
Flow	VTP 11-a	70 — 80 mm
Cure	VTP 4-a-1	35 — 45 sec
Ash	VTP 18	> 0.1%
Screen test	VTP 10-a	95% thru 200

Solubility:

Soluble in lower alcohols and ketones. Insoluble in hydrocarbons but soluble in mixtures of aromatic hydrocarbons with alcohols or ketones.

Uses:

Recommended for use in rubber tile flooring and hard rubber soles. * (VTP is Varcum Test Procedure)

Varcum also has available other resins such as Varcum 9820, Varcum 5165 and Varcum 2261 for special applications with rubber for bonding, adhesives or hard rubber formulations.

Write for test-size samples of these resins on your company stationery.

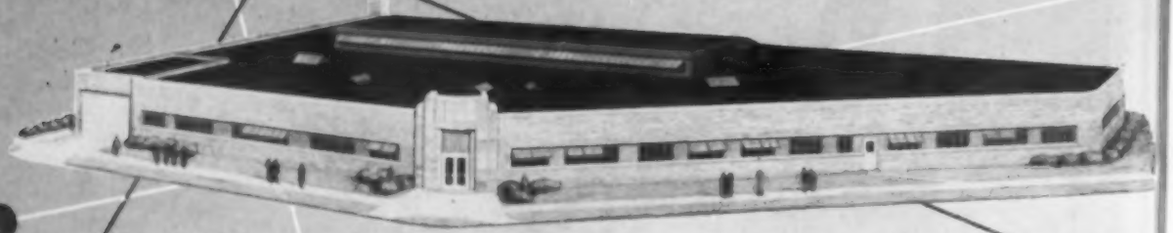
Synthetic VARCUM Resins

VARCUM CHEMICAL Corporation

NIAGARA FALLS, N. Y.

Specify INDUSTRIAL

For Precision Molding of Mass Production Plastic Parts and Products



Write today for illustrated booklet on Industrial's facilities.

At the core of almost every plastic problem is the mold. Vital factors in the finished plastic part are determined by how well the mold is engineered. Constructions of cavities—single or multiple, the use of wedges, pins or complicated inserts, holding to extremely close tolerances—calls for tested skill and long experience. Every mold at Industrial, from the simplest to the most complex, is backed by twenty-five years of experience in die making.

Next, quality control at every step of production results in a high level of uniformity in every unit. Such control in mass production assures you of increased production schedules, functionally sound and economically manufactured products and parts. For precision molded plastic products and parts of rigid tolerance and uniform, high quality, Specify Industrial.

INDUSTRIAL MOLDED PRODUCTS CO., 5201 N. Avondale Avenue · Chicago 30, Illinois

South Bend Representative: Mr. C. W. Krueger, 908 Tower Building, South Bend, Ind

You knead color in margarine

...and discover an amazing combination of properties in HYCAR

THIS new pouch-package for oleomargarine deserves the award* it got. It is made from a combination of Hycar and vinyl resin. The idea may lead to a whole new chain of improved packages. With one twist, a housewife discharges a color capsule into the white margarine, quickly kneads it through and soon has the golden spread she likes to serve on the table.

Just think what they're asking of this pouch! Transparency—so a woman can see what she's doing. Flexibility—so the kneading operation can be easy and quick. Great strength—so there's no danger of its breaking open in her hands. And in addition, the package must be tasteless, odorless and appetizing in appearance. If it were not for Hycar American Rubber this package might not have been possible.

This is one outstanding example of the many development ideas that Hycar American Rubber has helped make possible. It suggests ways for making old products better, cheaper or both—for lowering processing costs—for creating markets for brand new products. For instance, Hycar can now be put into formulations with Geon polyvinyl materials—and you do away forever with migrating plasticizers!

We make no finished products from Hycar, but we are glad to supply information and to help with any special problem. Write B. F. Goodrich Chemical Company, Dept. HS-1, Rose Building, Cleveland 15, Ohio In Canada: Kitchener, Ontario.

*Delrich E-Z Color Pak (Cudahy) Packaging Award, Modern Plastics competition. Visten Film by Visking. Package by Shellmar.

Hycar
Reg. U. S. Pat. Off.
American Rubber

B. F. Goodrich Chemical Company
A DIVISION OF THE B. F. GOODRICH COMPANY

GEON polyvinyl materials • HYCAR American rubber • KRISTON thermosetting resins • GOOD-RITE chemicals

Greater resistance to heat and light . . . to cold, aging, oils, acids, foods, other destructive factors . . . are features of products made from Marvinol resins.

MAKING PRODUCTS FROM VINYL RESINS?
you'll get more of everything with MARVINOL®

If you're making plastic or elastomeric products from vinyl resins, it will pay you to read these facts about Marvinol . . . the resin that gives you more of everything.

More Stability!

Marvinol offers superior stability in processing and in end product. High molecular weight gives it extra toughness and "dryness" . . . yet it is easy to calender, extrude, injection mold, disperse, or process into unplasticized rigids. Plastics made from Marvinol are easily cleaned... show less heat deformation, have greater low temperature flexibility . . . may be opaque or transparent, brilliantly or delicately colored.

More Uniformity!

Marvinol resins are a development of Martin research and Martin's quarter-century of plastics experience . . . the same research and experience that developed the Mareng flexible fuel tank for aircraft. They're being produced in the world's most modern chemical plant to assure you of unexcelled uniformity. And they're backed by the Martin reputation for quality of product.

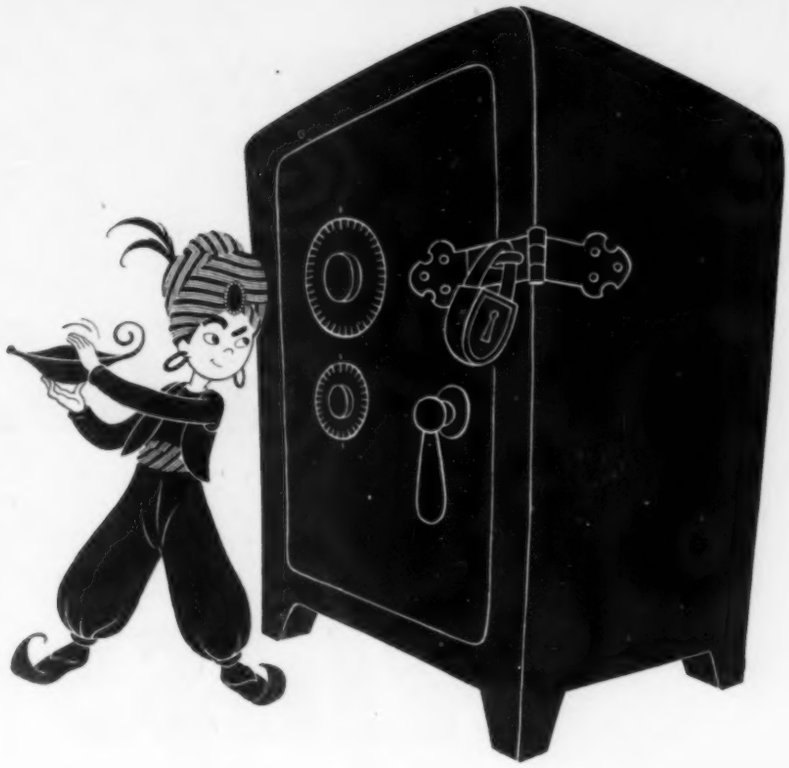
More Cooperation, too!

The Glenn L. Martin Company does not compound or fabricate in the plastics field. Sales engineers and a fully equipped modern customer service laboratory offer maximum technical cooperation. Write on your company letterhead to: Chemicals Division, Dept. MP-9, The Glenn L. Martin Co., Baltimore 3, Maryland.

Martin Marvinol

RESINS, PLASTICIZERS AND STABILIZERS PRODUCED BY THE CHEMICALS DIVISION OF
THE GLENN L. MARTIN COMPANY • AN INTERNATIONAL INSTITUTION
"BETTER PRODUCTS, GREATER PROGRESS, ARE MADE BY MARTIN."

MANUFACTURERS OF: Martin 2-0-2 airliners....Advanced military aircraft....Aerial gun turrets....Marvinol resins (Martin Chemicals Division)
DEVELOPERS OF: Rotary wing aircraft (Martin Rotawings Division)....Mareng fuel tanks (licensed to U. S. Rubber Co.)....Honeycomb construction material (licensed to U. S. Plywood Corp.)....Stratovision aerial rebroadcasting (in conjunction with Westinghouse Electric Corp.)
LEADERS IN RESEARCH: to guard the peace and build better living in many far-reaching fields.



Maybe We've Got the Combination to Your Moulded Plastic Job

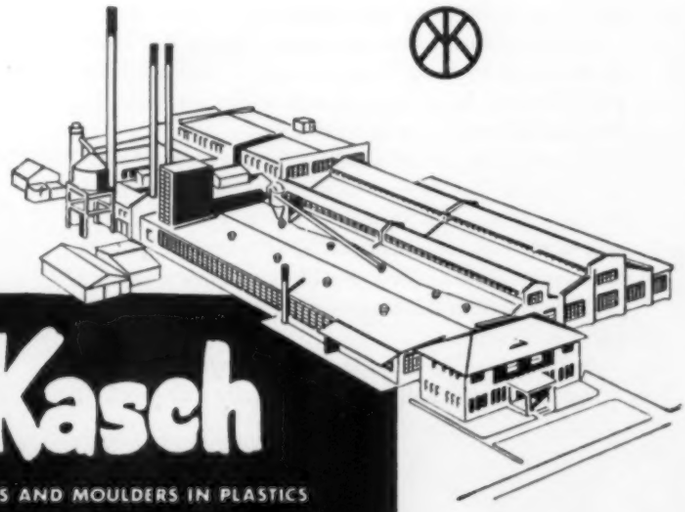
THERE'S no "Open Sesame" to a new moulding problem. Getting results takes the same old patient hunt for the proper combination—in every function from design and engineering right through mould-making, moulding, finishing and the rest.

But there's this bit of magic that still works. Knowing these problems . . . having solved similar puzzles before . . . experienced moulders are liable to get there quicker. And with methods that have been tried and proved.

So look a little deeper than the price tag on your moulder's bid. Experience like ours — a reputation like ours — experienced personnel and a complete, self-integrated plant like ours—these things mean we'll quote a fair price on a job you can depend on quality-wise, cost-wise and delivery-wise.

We're interested in your business, if either compression, transfer or plunger moulding will do the job. May we send a sales engineer?

Kurz-Kasch, Inc., 1415 S. Broadway, Dayton 1, Ohio
BRANCH SALES OFFICES: New York, *Lexington 2-6677* Chicago, *Harrison 5473* • Detroit, *Randolph 5214* Franklin, Pa., *Venango County 186* • Los Angeles, *Prospect 7503* • Dallas, *Lakeside 1022* • St. Louis, *Rosedale 3542* • Toronto, Canada, *Adelaide 1377.*
EXPORT OFFICES: 89 Broad Street, New York City, *Bowling Green 9-7751.*



Kurz-Kasch

FOR OVER 31 YEARS PLANNERS AND MOULDERS IN PLASTICS

Kalistron

COLOR FUSED TO UNDERSIDE

wins!

NEW PLASTIC COVERING MATERIAL WINS MODERN PLASTICS AWARD IN FURNITURE AND INTERIOR DECORATING DIVISION

Here is a revolutionary new plastic covering material.

The name comes from the Greek, Καλιστερον (Kalisteron), meaning "more beautiful". And that's just what Kalistron is. It has a beauty unlike anything else because Kalistron *is* unlike anything else.

Kalistron starts as a transparent sheet of special "Vinylite"* Plastic. The color is fused to the *underside*, glows thru the transparent "Vinylite" Plastic with a richness and depth hitherto unobtainable. This unique process makes special color effects possible; for instance, you can get Kalistron with the characteristic mottling and graining of fine leather.

And because its color is guarded by transparent "Vinylite" Plastic, Kalistron is practically mar-proof. It won't scuff, scratch, chip, crack or peel. It's water-proof, spot-proof, easily cleaned.

Kalistron can be applied to plaster walls or other porous surfaces by normal paperhanging technique, using water-soluble adhesive.

Kalistron has proved itself an ideal material for furniture upholstery, wall covering, counter tops, luggage—in fact for any purpose where durability and beauty must go hand in hand. It is available in many colors, including so-called "decorator" shades and tints. Ask for particulars.

Manufactured by DECO-PLASTICS, INC.

Distributed by:
United States Plywood Corp., 55 W. 44th St., N. Y. 18
and by: Deco Sales Div., 410 Frelinghuysen Ave., Newark 5, N. J.

* Registered Trade-Mark

The Improved
VAN DORN Plastic Press

1. *Spreader* added to heating cylinder cuts heating cycles up to 50%.
2. *Hard Chrome Plating* of interior of cylinder cuts resistance to flow of materials, protects against corrosive compounds.
3. *New Relief Valve*—set at 1500 P.S.I.—insures maximum clamping pressure always, permits *separate* adjustment of injection pressure.
4. *New Needle Valve* increases gage life, by allowing gage to be shut off except for periodic checks on pressure.

★ ★ ☆

With the addition of these four new features, this Van Dorn Press is *unequalled* in the 1 oz.-capacity class for molding practically all thermoplastics including nylon. This remarkably economical press—

Costs under $2000
Operates 8 hours for under a dollar
Uses less expensive molds
Can be set up by one man in 20 minutes

This Van Dorn Injection Press is unexcelled for profitable production of small parts, and "pilot" or experimental runs on bigger jobs.

We make mold bases for Van Dorn Presses.

THE Van Dorn IRON WORKS CO.
2687 EAST 79th STREET • CLEVELAND 4, OHIO

FREE BULLETIN
tells all the facts.
Write for it.

CUSTOM CRAFTSMANSHIP
in Plastic and Metal

This unfinished fieldglass assembly—injection molded styrene components and die cast zinc alloy housing—illustrates an important phase of our custom molding service. It is representative of the many articles—simple or complicated, large or small—produced by the combined craftsmanship of our plastic molding and die casting departments.

To produce better molded products for you we maintain:

- a molding department equipped with the finest and largest high-speed, automatic machines.
- an aluminum and zinc-alloy die-casting department.
- a completely modern toolroom in which we make all our own molds, giving great latitude to our engineers and designers.
- an engineering department which specializes in finding answers to difficult plastics problems.

Call on us for further information or for help with any specific job.

CENTRAL DIE CASTING & MFG. CO., Incorporated
2935 WEST 47th STREET CHICAGO, ILLINOIS

EXTRUDED PLASTIC SECTIONS BY SANDEE..

OUTSTANDING CONTRIBUTIONS TO MODERN INDUSTRY

SANDEE has developed Thermoplastic Extrusions to an exceptionally high degree of efficiency. They are being used successfully for a constantly increasing number of industrial and decorative applications. Rigid and Flexible Sections in endless variety are custom-made to meet the most exacting specifications.

Each plastic material has individual characteristics. Let our skilled plastic engineers suggest the *one best material* for your needs. Take advantage of our highly developed plastic extrusion "know-how" and production techniques. Write today. Get suggestions, ideas and cost estimates. No obligation, of course.

SANDEE MATERIALS AND CURRENT USES..

POLYSTYRENE—*Outstanding for rigidity, dimensional stability, color and light weight.*
Current uses include large and small fluorescent side shields and towel bars.

PLEXENE—*Outstanding for rigidity, dimensional stability, good toughness and ink resistance.*
Current uses include musical instruments, trim, keys, bridges, fountain pen and pencil barrels.

TENITE II—*An excellent general purpose material—beautiful colors, soft feel, good dimensional stability and excellent toughness at normal temperatures.*
Current uses include refrigerator and furniture trim, tee square edges, rods, and tubes.

ETHYL CELLULOSE—*Outstanding for toughness even at low temperatures, very good dimensional stability and wide color range.*
Current uses include refrigerator and furniture trim, golf club shaft and shank coverings, pen and pencil barrels.

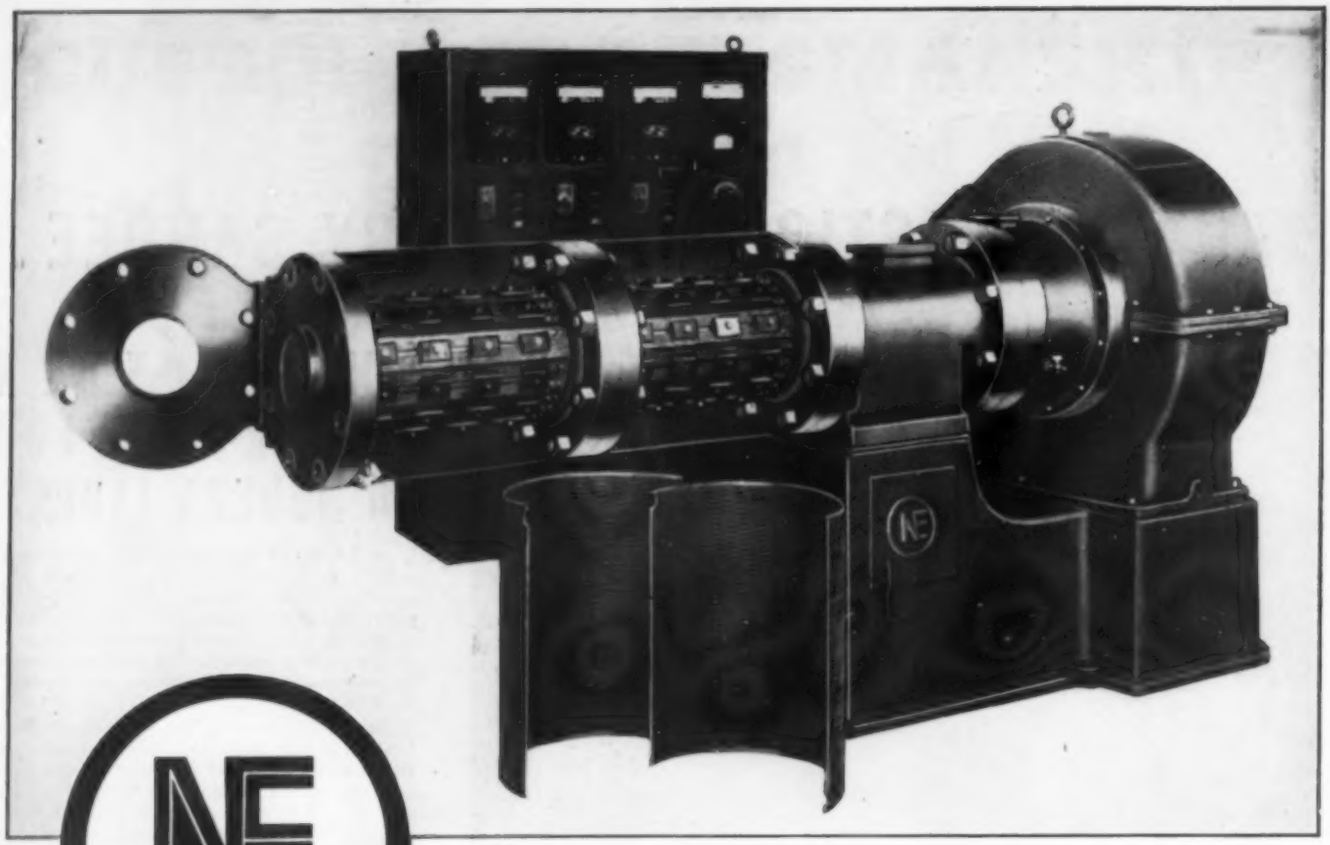
VINYLS—*Outstanding for age resistance, electrical insulation, flexibility, toughness and appearance.*
Current uses include mattress handles, automotive insulation, portable radio handles, and high strength hose.

ALES REPRESENTATIVES IN 19 PRINCIPAL CITIES

Sandee Manufacturing Company

5050 FOSTER AVENUE • CHICAGO 30, ILLINOIS

EXTRUDED PLASTICS AND SPECIAL TOOLS



NE *presents* NEW LINE OF ELECTRICALLY HEATED EXTRUDERS—THE ANSWER TO PROCESSING HIGH TEMPERATURE PLASTICS

NE Products

EXTRUDERS
STRAINERS
HYDRAULIC PRESSES
MIXING MILLS
LABORATORY PRESSES
SIMPLEX DOORS for Pressure Vessels
STEEL CASTINGS and GEARS to Any Specifications.

THE above NE extruder features direct contact, electrically heated cylinders for the extrusion of high temperature plastics—up to 750° F. This electrical method provides clean and safe operation over a wider temperature range than is possible with any other heating medium. More accurate control and more uniform heat application throughout the cylinder is possible with this method. It is adaptable to any extruder. Consult with NE engineers for recommendations on electric heating for your extruders.

• *Write for copy of our general catalog that fully describes NE Extruder's 5-unit construction.*

NATIONAL ERIE CORPORATION
ERIE, PENNSYLVANIA • U. S. A.

CLIP THIS AD ALONG DOTTED LINE AND PLACE ON BULLETIN BOARD

Notice TO EXECUTIVES OF THE PLASTICS INDUSTRY

HOME TRAINING IN PLASTICS

offers your junior executives and ambitious employees the opportunity to up-grade themselves and advance to more important positions within the industry. Many men and women now engaged in some branch of the Plastics Industry have advanced through knowledge gained by taking the Plastics Institute Home Study Course.

The New Revised Course covers Plastics Materials and Resins; Injection, Compression and Extrusion Molding; Fabricating; Mold Design; Laminating; Plaster Patterns; Casting; Cost Analysis, and many other branches of the industry. Lessons are profusely illustrated, and actual plastics products and materials for home practice are supplied.

Plastics Institute Home Study Course, as well as Resident School Training in Los Angeles—Approved for Veterans—Available for Non-veterans.

WHY NOT ACQUAINT MEMBERS OF YOUR ORGANIZATION WITH THIS EDUCATIONAL OPPORTUNITY? • ***(May we suggest that you place this page on your employee bulletin board and mail coupon below for free literature.)***

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1601 SOUTH WESTERN AVENUE • LOS ANGELES 6 • CALIFORNIA

Offices at: NEW YORK, 31-28 Queens Blvd., Long Island City • CHICAGO, 3810 N. Broadway

PLASTICS INDUSTRIES TECHNICAL INSTITUTE • 1601 S. WESTERN AVE. • MP-98 • LOS ANGELES 6, • CALIFORNIA

Gentlemen:
Please send_____copies of literature and information on courses.

COMPANY NAME_____ ATTENTION OF_____

STREET_____ CITY_____ ZONE_____ STATE_____

NEW
PRODUCT IDEAS
WITH
CELLULOSIC PLASTICS

TOOL HOUSINGS CAN "TAKE IT" WITH

FLAME-RESISTANT ACETATE

This and other suggested designs by Carl Sundberg, Sundberg & Ferar, Detroit, Michigan, will be shown at the Hercules booth at the National Plastics Exposition

This suggested design for an electric tool indicates the longer, more efficient service life of cellulose acetate housings. It features acetate's high-impact strength, dimensional stability, good electrical insulation, permanent color and finish, and a combination of compactness and lightweight that make for easy handling over long periods. And, in addition, provides the important advantages of flame and heat resistance.

Electrical manufacturers already are using flame-resistant acetate to house Underwriters'-approved electric shavers, mixers, and for male plugs and connectors. If you are interested in this new thermoplastic, write:

HERCULES POWDER COMPANY
INCORPORATED
916 Market Street, Wilmington 99, Del.

Sectional view showing one-half of the easily assembled two-piece housing handle

MOLDED IN CELLULOSE ACETATE FOR

Flame and Heat Resistance
Impact Strength
Compactness
Lightweight
Dimensional Stability
Thin-walled Toughness

SUPPLIERS OF HIGH-QUALITY CELLULOSE DERIVATIVES FOR PLASTICS

CP8-10

CELLULOSE ACETATE • ETHYL CELLULOSE • NITROCELLULOSE

THEY LOOK LIKE METAL BUT THEY'RE PLASTICS Plated by ELECTROCHEMICAL'S patented* process

CONVERT your PLASTICS into objects of striking beauty and greater utility by metal plating!

ELECTROCHEMICAL's exclusive patented* plating process brings you a new and finer conception of low-cost metal coating on plastics of every kind, shape and size.

If you manufacture molded or fabricated plastics . . . whether functional or decorative . . . look into plating by ELECTROCHEMICAL! Send us samples of your products . . . let us test-plate them for you and submit prices without obligation. We serve all industries, including Automotive, Aeronautical, Electrical and Electronic, Novelty, Cosmetic, Jewelry, etc.

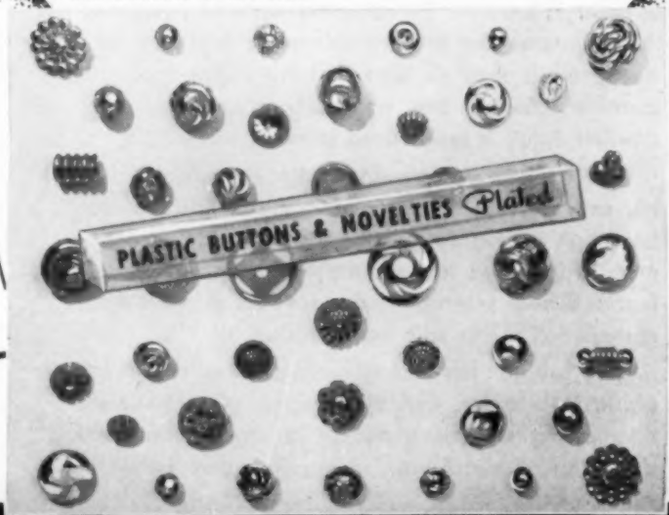
* U. S. Patent No. 2,421,079 — other patents pending.

AWARD OF EXCELLENCE
American Electroplaters' Society
EXHIBIT – FIRST PRIZE AWARD
This certificate of merit has been awarded to
Harold Narcus
for excellence in quality and efficiency in finishing
electroplated exhibit submitted
American Electroplaters Society

Awarded to HAROLD NARCUS, President of Electrochemical Industries, Inc.

Lightweight plated plastics that have the appearance and characteristics of metal without its high cost are replacing metal parts for countless functional uses.

ELECTROCHEMICAL's patented* plating process converts plastic jewelry, novelties, buttons, bottle caps, handbag accessories and other decorative objects into things of beauty and brilliance at low cost.



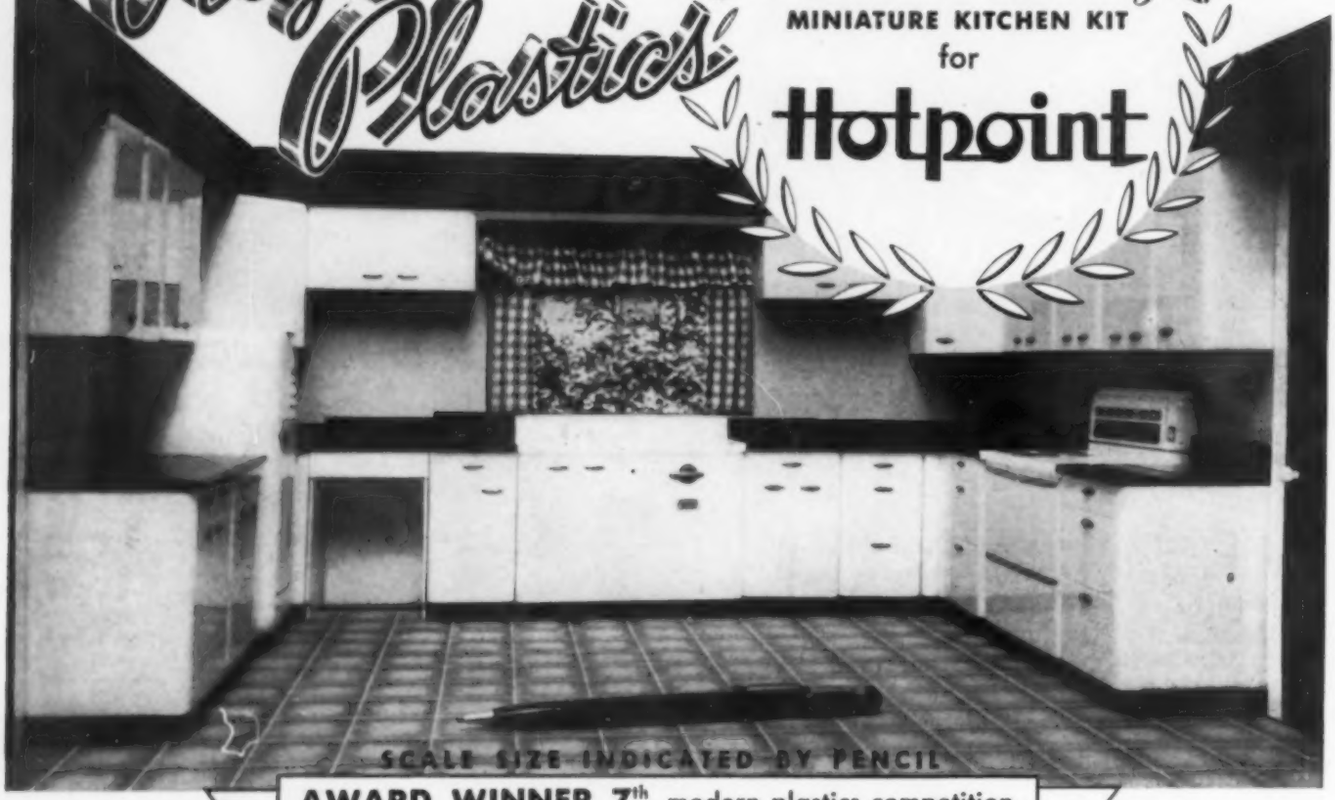
ELECTROCHEMICAL INDUSTRIES, INC.

45 SPRUCE STREET — Plating on Plastics — LEOMINSTER, MASS., U. S. A.

GOLD, SILVER, COPPER, NICKEL and ANTIQUE FINISHES

Regal Plastics

MAKES
Award-Winning
MINIATURE KITCHEN KIT
for
Hotpoint



AWARD WINNER 7th modern plastics competition

First Hotpoint, Inc. called in the Regal Plastic Company for consultation. Regal showed Hotpoint, Inc. how to improve their scale miniatures of kitchen appliances which had previously been made of wood. In order to increase the attractiveness and realism of the miniatures and to more accurately duplicate their own product they decided to have Regal fabricate them of plastic. See above, how accurately the smallest detail is reproduced in miniature.

The miniatures, assembled into an easy-to-carry kit, are used to layout and pre-plan kitchens for homes. A photograph of the recommended arrangement is presented to the prospect for approval. Perfect appliance selection and placement is in this manner assured before sale and installation.

You, too, can have the advantages of prize-winning plastic fabrication and engineering. Our complete engineering staff is available for consultation and designing of merchandising displays and industrial applications.

...AND REGAL IS FAMOUS FOR:

FULL SIZE *Demonstrator Model*

FULL SIZE floor demonstrator washing machine tubs for:

- *Sears Roebuck Co.*
- *1900 Corporation*
- *Dexter Mfg. Co.*
- *Apex Washer Co.*

JUST A FEW OTHER REGAL PRODUCTS:

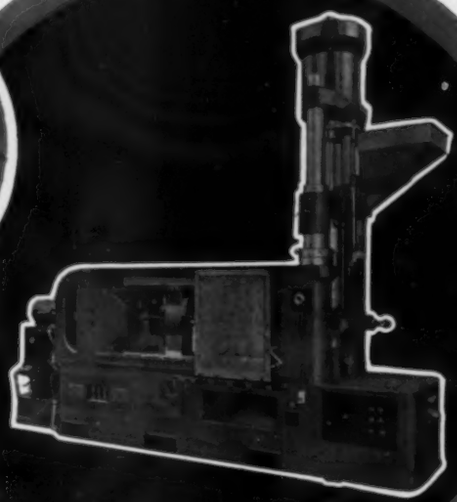
Pie carrying racks for Harris Pie Company
Transparent Gear Housings for Sesco Engineering Co.
Food Service Trays For TWA
Necktie Display Racks for Wembley Tie Company

REGAL PLASTIC COMPANY • 710-720 Main Street • Kansas City 6, Missouri

See our display—Booth 312—National Plastics Exposition, Grand Central Palace, New York City, Sept. 27—Oct. 1. Territories Open for Representation.

IT TAKES A WINNER TO MAKE A WINNER

Fruit Juicer
One of the
6th
ANNUAL COMPETITION
winners molded on a Lester by Injection Molding Co. for Dazey Churn & Mfg. Co.



Hearing Aid
One of the
7th
ANNUAL COMPETITION
winners molded on a Lester by Vichek Tool Co. for Paravox, Inc.

Yes, Lester-Phoenix machines are constantly leading the field: in speed of production, size of shot for rated capacity, durability, design innovation and all the other famous Lester features. So, it is only natural that winners in the Seventh Annual Plastics Competition should have been molded on Lester Injection Molding Machines. We invite you to examine the Lester and watch its performance at the Third National Plastics Exposition in New York this month. Our booth number is 58-59. Write to us for your complimentary tickets of admission.

SP NATIONAL PLASTICS EXPOSITION
1948
GRAND CENTRAL PALACE NEW YORK
SEPT. 27—OCT. 1

REPRESENTATIVES

New York	Steven F. Krould
Chicago	Elmer C. Maywald
Detroit	Thoreson-McCosh
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Los Angeles	Seaboard Machinery Co.
Leominster	Standard Tool Co.
Cleveland	Don W. Williams
San Francisco, Cal.	J. Fraser Rae
Philadelphia	Wright & Gade Tool Co.

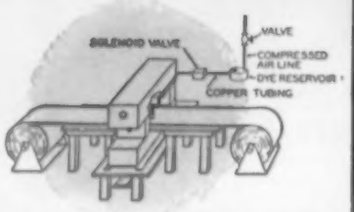
FOREIGN

Toronto, Canada	Modern Tool Works, Ltd.
London, England	Dowding & Doll, Ltd.
Calcutta, India	Frances Klein & Co.
Sydney, Australia	Scott & Holladay, Ltd.

LESTER INJECTION MOLDING MACHINES

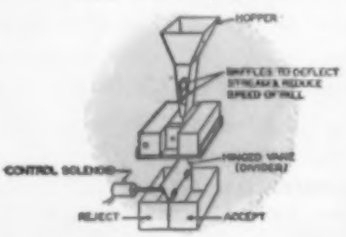
Distributed by **LESTER-PHOENIX, INC.**
2701 CHURCH AVE., CLEVELAND 13, OHIO

PAID FOR ITSELF THE FIRST DAY!



INSPECTION OF CONTINUOUS STRIP

An ideal set-up for plastic sheeting and film. When metal is detected, air pressure sprays dye on the contaminated portion. Many modifications possible to fit varying needs.



INSPECTION OF FALLING MATERIAL

A good way to inspect molding powders, fillers, and resins. When metal is detected, the hinged vane deflects the stream into the reject bin.

Electronic Metal Detector inspects plastic rolls, protects calender at National Automotive Fibres

"In one operation our electronic metal detector saved us $2,000," reports National Automotive Fibres, Inc., Trenton Division.

"By detecting a fairly large piece of tramp metal embedded in the plastic we were processing, it prevented severe damage to our calender roll . . . saved the cost of an expensive regrinding operation."

In this plant, a preliminary visual inspection of plastics eliminates obvious pieces of metal. After the plastic has gone through the milling roller, the rolls are carried on a conveyor belt through the detector's inspection aperture. If metal is present, a bell rings, the roll is removed and unwound, and the particle is eliminated.

This modern electronic equipment can spot every type of metal and alloy — magnetic or non-magnetic, regardless of its depth in the material. Reports on units in use for more than two years attest to its reliability — even in detecting particles as small as 70 thousandths of an inch in diameter!

Here's a unique opportunity to protect your valuable tools, dies, molds, engraved rolls, and calenders . . . reduce lost production time . . . safeguard product quality . . . preserve customer good will. For descriptive literature, write ALLIS-CHALMERS, MILWAUKEE 1, WIS. A 2458

Now . . . made by RCA, sold exclusively by

ALLIS-CHALMERS *Metal Detectors*

No Greater Evidence...

No greater evidence of fine quality plastics can be shown than by the confidence placed in Grigoleit by eminent manufacturers. For over 20 years Grigoleit has been serving the leaders in varied industries throughout the nation.

Whatever *your* particular problem might be—in plastics, metal or plastic and metal trim—*let Grigoleit handle it.*

THE GRIGOLEIT COMPANY

"Over Twenty Years in Plastics"

744 E. NORTH ST. DECATUR, ILLINOIS

Congratulations, gentlemen

. . . the competition was hot!

Award Winner
ELECTRICAL APPLIANCES CLASS
Seventh Modern Plastics Competition
ROTO-BEAM FAN
produced by Roto-Beam, Chicago, Ill.
Five-Bladed Fan, Motor Housing, and Base
Molded of Durez Phenolics by Hauser Products, Inc.

•

Award Winner
MUSICAL INSTRUMENTS CLASS
Seventh Modern Plastics Competition
SPINET PIANO KEYBOARD
produced by Pratt, Read & Co. Inc., Ivoryton, Conn.
Sharp (Black) Keys Molded of Durez Phenolic Plastics
by Mack Molding Co.

● Each year sees more good judgment in the use of plastics. The industry is maturing, technically and design-wise — a fact that places all new plastics products and parts on a more highly competitive level in performance and salability. Hence we have extra pleasure in congratulating the designers, molders, and fabricators who produced these Modern Plastics winners. To see, each month, new examples of how other manufacturers are overcoming design, production, and selling problems with plastics, let us send you "Durez Plastics News."

Durez Plastics & Chemicals, Inc.,
1213 Walck Rd., N. Tonawanda, N.Y.
Export Agents: Omni Products Corp., 460 Fourth Avenue, New York 16, N.Y.

PHENOLIC PLASTICS THAT FIT THE JOB

Monarch lathe with "Air-Gage Tracer" uses Timken® bearings

THE sensitive "Air-Gage Tracer", shown fitted to the Monarch 16" lathe below, provides a versatile method of turning multiple diameter shafts and contours from a master template. Contours correspond to the template within a limit of tenths.

Like so many other manufacturers of fine machine tools, Monarch uses Timken tapered roller bearings at vital points. Their tapered construction carries radial and thrust loads without deflection or end-movement, and permits accurate pre-loading to any desired degree. Machine tool spindles are held rigid, kept revolving accurately. Line contact between rolls and races gives unequalled load carrying capacity.

Timken bearings are made from Timken fine alloy steel, heat treated and case-hardened to give amazing resistance to wear. Finishing to incredible smoothness makes friction negligible.

No other bearing can give you all the advantages you get with Timken tapered roller bearings. Be sure you have them in every machine tool you build or buy. Look for the trade-mark "Timken" on the bearing. The Timken Roller Bearing Company, Canton 6, Ohio. Cable address: "TIMROSCO".

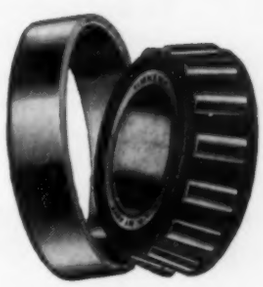
TIMKEN BEARING EQUIPPED — *This symbol on a product means its bearings are the best.*

TIMKEN BEARING
CAPACITY RATINGS INCREASED 25%.

Since Timken bearings were re-rated some 15 years ago there has been such a further and constant improvement in quality that we are now able to announce a 25% increase in radial and thrust load carrying capacity. This may make possible the use of smaller bearings with savings in bearing cost, material cost and weight. Engineers will be able to utilize the advantages of Timken bearings in more applications than in the past.

A new Timken Engineering Journal, now in preparation, will give you complete capacity rating tabulations. For further assistance, write us today.

TIMKEN
TRADE-MARK REG. U. S. PAT. OFF.
TAPERED ROLLER BEARINGS



NOT JUST A BALL ○ NOT JUST A ROLLER ▭ THE TIMKEN TAPERED ROLLER ▭ BEARING TAKES RADIAL ◫ AND THRUST ⊟ LOADS OR ANY COMBINATION ✳

TITANOX . . . *the brightest name in titanium pigments*

Photo courtesy of Pantasote Company

Plastics compounded with these titanium dioxide pigments acquire a clarity of tint that pleases the plastic compounder and molder — as well as satisfies the seller and consumer of finished products. TITANOX pigments are as effective in making plastics white as they are for making them light-colored.

They also impart a great amount of brightness. The amount of translucency can be controlled or absolute opacity given, as desired. Another advantage: products so compounded maintain all these desirable qualities permanently.

The Technical Service Laboratories of the Titanium Pigment Corporation are maintained for the purpose of providing help to customers with respect to the most advantageous and economical use of TITANOX pigments. You are cordially invited to take advantage of these facilities.

393

TITANOX

Reg. U. S. Pat. Off.

TITANIUM PIGMENT CORPORATION
SOLE SALES AGENT

111 Broadway, New York 6, N. Y.
104 So. Michigan Ave., Chicago 3, Ill.
350 Townsend St., San Francisco 7, Cal.
2600 S. Eastern Ave., Los Angeles 22, Cal.

"Can do" HAS A NEW HOME

Our *new* house, that skillful molding built, is America's most modern plastics molding plant.

While our building has the "new look"—our engineers and molding craftsmen haven't. They're the same painstaking plastics specialists who have said "can do" and "did do"—whether the job was called "too tough" or even "impossible."

Now equipped with the fine facilities that only a completely new plant can offer—our molding skill is at your service—ready to produce more profitable plastic products for you. Drop in and see us soon.

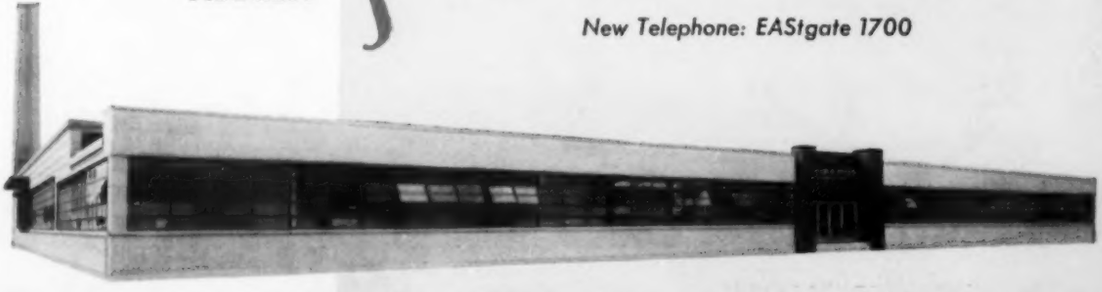
NEW ADDRESS

ELMER E. MILLS CORPORATION

2930 N. Ashland Ave., Chicago 13, Ill.

New Telephone: EAStgate 1700

NEW PLANT



• CUSTOM MOLDERS • INJECTION MOLDING • EXTRUSION • ENGINEERS AND DESIGNERS

High award winner in the recent Modern Plastics competition, The Cudahy Packing Company's revolutionary new packaging for their Delrich Margarine is a typical "Why didn't somebody think of that before?" invention.
"Squeeze bag" is made of VISTEN.
It's a pure, tasteless, odorless thermoplastic film that remains stable in the presence of fatty acids and brine. We, at VISKING, are proud of this interesting use of VISTEN.
The package was developed by VISKING Research for the Lion Rock Corp., package patentee.
Hats off to all the winners—The Cudahy Packing Co., the Lion Rock Corporation, and the Shellmar Co., manufacturers who produce package for Cudahy.

The New VISTEN* "squeeze bag" for self-coloring Delrich Margarine...

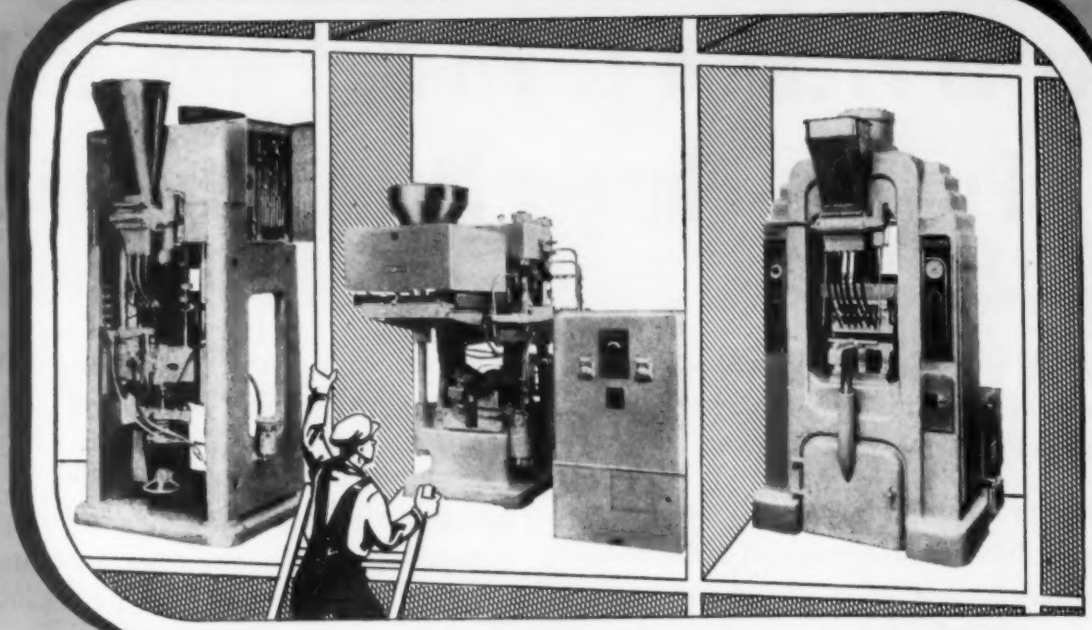
ANOTHER winner from VISKING† research!

THE VISKING CORPORATION
CHICAGO 38, ILLINOIS

Manufacturers of Visking casings, Visqueen* plastic film, Viskon* nonwoven fabric and Visten. Plants in Chicago, Ill., Terre Haute Ind., N. Little Rock, Ark. *Trademark, †Reg. U. S. Pat. Off.

ASK STOKES

You don't buy Plastic Molding Presses "OFF THE SHELF"



Visit Booths 87-88 at the Plastics Show

SELECT the press which will make *your* product to *your* exact specifications at *lowest cost* for production and maintenance.

Such a method of choice will lead you to the Stokes organization . . . to the one press *you* need from the Stokes full line of plastic molding presses.

Stokes engineers are experienced in planning operations for profitable production on all kinds of presses . . . fully automatic, semi-automatic, closure, plunger . . . special presses for special needs . . . and plastic preforming equipment.

In addition to complete press service, Stokes is prepared to supply you with product cost studies and advice on mold design. On automatic presses, Stokes breaks in new molds and sets machines for production . . . sends demonstrators to help you get started and to train your men for profitable operation.

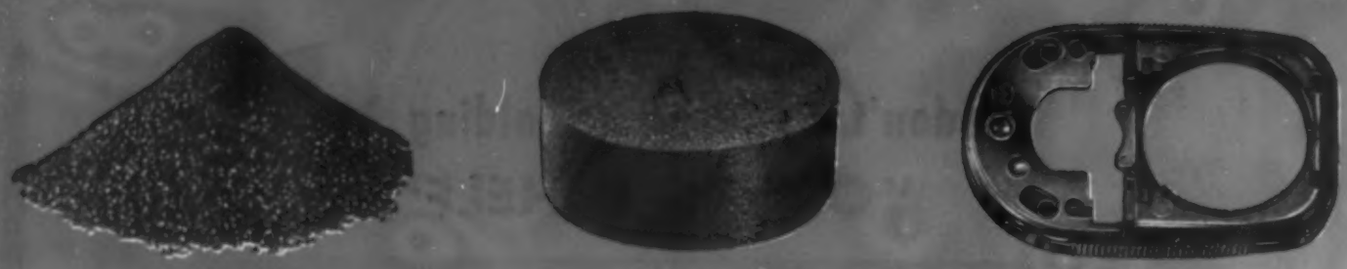
You are invited to use this complete service by which Stokes answers your questions about molding presses. There is more to buying a press than picking one "off the shelf".

F. J. Stokes Machine Co.,
5934 Tabor Rd., Phila. 20, Pa.

FJS

Stokes also makes Automatic Plastic Molding Machines, Closure Presses, Preforming Presses, Powder Metal and Ceramic Presses, High Vacuum Processing Equipment

STOKES KNOWS HOW

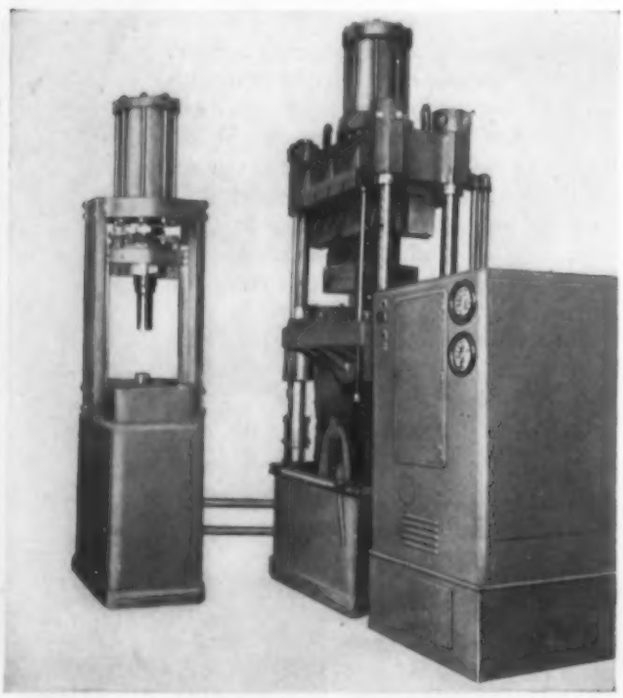


Powder to Preform to Product with Stokes *NEW* Preform-Plunger Molding Combination

INVESTMENT, labor cost, and floor space are at a minimum with this new Stokes-Standard Combination Preformer-Plunger Press.

The Preformer has been ingeniously devised to operate from the same pumping unit as the molding press and is capable of producing one or more preforms, each up to ½ pound weight of conventional material.

Illustration shows, from left to right, the Preforming unit, the Plunger Molding press, and the Stokes power and control unit.



From Powder to Preform to Product with one combination unit operated by one man

The entire combination is handled by a single operator who has complete control from powder to finished part. The preformer, actuated by the patented bar-type controller, makes one or several preforms as needed. The operator transfers the preform to a preheater and thence to the plunger press.

This combination unit supplies uniform preforms of accurate weight, saving material and handling, as well as improving the results of preheating and molding operations.

SEE and OPERATE this new combination Preform-Plunger Molding press at the Plastics Show, New York, September 27 to October 1.

The New Stokes Combination Preform-Plunger Molding Press

Illustration shows Stokes 50-ton plunger molding press with preforming unit; all, including preheating, handled by a single operator.

Preformer is of solid side frame design with enclosed base, and safety guard in front of punch. Hopper and feed shoe are of stainless steel.

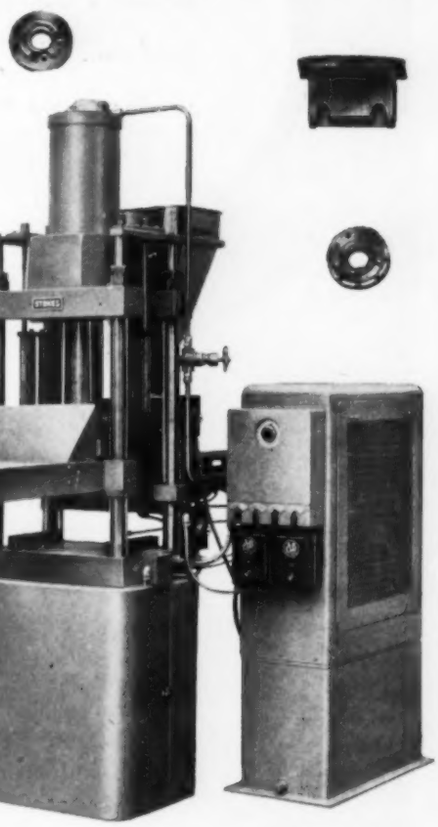
The preformer, as well as the plunger press, is controlled by the Stokes-patented bar type controller. Pressure is hydraulic and of controlled duration. Punches and dies are easily changed. Maximum diameter of preform, 3". Depth of fill, up to 4".

F. J. STOKES MACHINE CO. P

Another Leader in the Stokes Family of Completely Automatic Plastics Presses

ANNOUNCING

THIS is Model 741*, a 50-ton press designed for high production of a wide variety of plastic parts. Any number of cavities up to the limit of the 13" x 15" platen area may be used to give high production. This, combined with uninterrupted operation, particularly commends the Model 741 for long run jobs. It will handle many parts not previously adapted to automatic production.



Typical parts automatically produced on the Stokes 741 Molding Press.

The Model 741 is a companion piece to earlier successful Stokes 15- and 50-ton automatic presses. Back of its design is 10 years of Stokes pioneering experience in the field of fully automatic plastic molding.

Labor cost is extremely low, as one man can handle up to 10 of these presses. This new 50-ton hydraulic press can also be cycle-operated for insert work or other special operations. It can also be manually operated when setting up, and restored to fully automatic operation by movement of a single switch. Heating is by steam or electricity. Complete safety in operation is provided by special automatic controls.

See the NEW Stokes 741 operating at the National Plastics Show, September 27 to October 1

The 741 press is a self-contained unit, easy to install and operate. It has a compact power and pumping unit. Hydraulic pressures are relatively low, assuring minimum operating and maintenance costs. Only a 3 H-P motor is required.

Hydraulically actuated shuttle-type feed handles any number of cavities up to the limit of the platen area. The press is designed to accommodate a full drum of molding powder.

Air is filtered for mold-cleaning by built-in filter.

Top and bottom knockouts are provided and either or both can be actuated as required.

*PATENT PENDING

D. PHILADELPHIA, PENNSYLVANIA

ASK STOKES

NOW take a look at Stokes NEW Dual Pressure Preformer

USING the Dual-pressure principle for the first time in preforming, the new Stokes 294 Preforming press applies equal pressure simultaneously from top and bottom, assuring uniform density throughout the preform. This new press makes preforms up to 4" in diameter with a maximum die-fill of 2⅝". Less power is required to give high pressures, and punch and die wear is reduced. Moreover, power-application is so planned that the Stokes press cannot jam —or even *be*— on dead center.

F. J. Stokes Machine Co., 5934 Tabor Rd., Phila. 20, Pa.

Visit Booths 87-88 at the Plastics Show

The NEW Model 294 Preformer is a valuable addition to the Stokes line of 10 Single Punch, High Speed Rotary, and General Purpose Preformers for every requirement of the trade.

Stokes makes Semi-Automatic and Automatic Molding Presses, Plunger Presses, Closure Presses, Preforming Presses, Industrial Tabletting and Powder Metal Presses, Vacuum and Special Processing equipment, Water Stills and Special Machinery.

STOKES KNOWS HOW

"SQUEEZABLE"

Clearsite*

polyethylene vial by Celluplastic

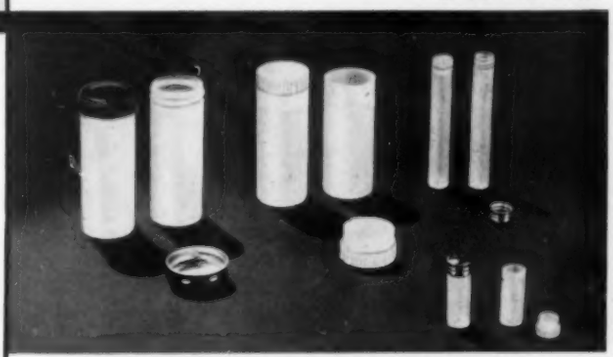
*Reg. U.S. Pat. Office

Clearsite flexible polyethylene and rigid polystyrene vials

are available in a complete range of stock sizes

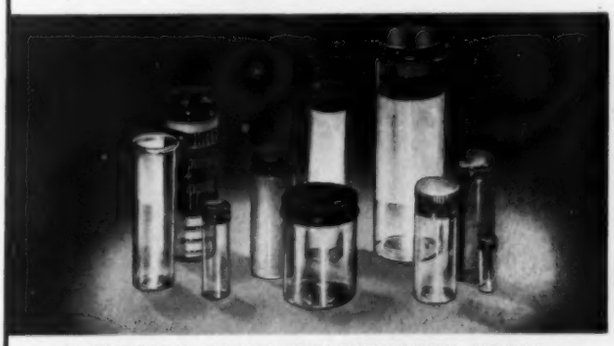
The deodorant container above illustrates one of many uses of Clearsite "squeezable" polyethylene vials. These vials, together with Clearsite rigid polystyrene vials, come in a complete range of stock sizes. Dependable uniformity for line production. All colors. Special sizes and shapes to order. Straight, threaded and beaded necks. All types of closures. . . . Clearsite vials are also produced in cellulose acetate, cellulose acetate butyrate, ethyl cellulose and all other thermoplastics. Use Clearsite vials to display, protect and *dramatize* your product. Write Celluplastic for samples, literature, additional information.

Sizes	Approx. Outside Diam. Length in M.M.	Screw Caps G.C.A. Standard M.M.
⅜" x 1¼"	12 mm x 30 mm	10
⅜" x 2"	12 mm x 50 mm	10
⅜" x 3"	12 mm x 75 mm	10
½" x 2"	15 mm x 50 mm	15
½" x 3"	15 mm x 75 mm	15
½" x 3⅝"	15 mm x 92 mm	15
⅝" x 2"	17 mm x 50 mm	18
⅝" x 3½"	17 mm x 88 mm	18
¾" x 2"	21 mm x 50 mm	22
¾" x 3⅝"	21 mm x 92 mm	22
⅞" x 2½"	25 mm x 62 mm	26
⅞" x 3½"	25 mm x 88 mm	26
⅞" x 6⅝"	25 mm x 166 mm	26
1" x 2"	28 mm x 50 mm	30
1" x 3"	28 mm x 75 mm	30
1" x 4"	28 mm x 100 mm	30
1¼" x 2"	36 mm x 50 mm	38
1¼" x 3"	36 mm x 75 mm	38
1¼" x 4"	36 mm x 100 mm	38
1¼" x 6⅝"	36 mm x 166 mm	38
1¾" x 3"	45 mm x 75 mm	48
1¾" x 5"	45 mm x 125 mm	48



CLEARSITE FLEXIBLE POLYETHYLENE VIALS

"Squeezable". Complete range of colors. 75% lighter than glass. Non-breakable. Translucent and opaque. Tasteless. Odorless. Not affected by alkalis, acids or alcohols. Can be printed in 1, 2, 3 and 4 colors.



CLEARSITE RIGID POLYSTYRENE VIALS

Sparkling, crystal-clear and gem-like colors. 70% lighter than glass. Shatterproof. Transparent, translucent and opaque. Tasteless. Odorless. Not affected by alkalis, alcohols or weak acids. Permanent label imprinted during manufacture.

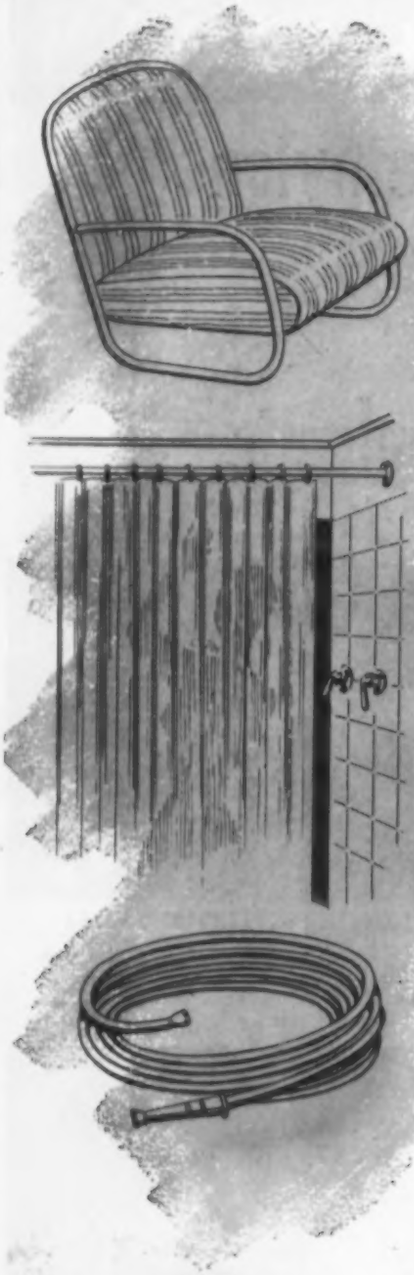
"AMERICA'S #1 SOURCE FOR PLASTIC CONTAINERS"

50 Ave. L, Newark 5, N. J. • New York Office: 630 Fifth Ave.
Circle 6-2425 • Representatives in principal cities.

Celluplastic CORPORATION Established 1919

BARRETT PLASTICIZER 50-B

FOR COMPOUNDING AND PROCESSING

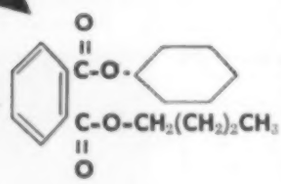


Supported

Unsupported Vinyl Film

AND

Extruded Products



Color: Clear, practically water-white (Hazen, 50 max.)
Form: Liquid
Odor: Mild Ester
Distillation at 5 mm. hg, °C.: 189-222
Specific Gravity 25/25°C.: 1.076
Pounds per Gallon at 25°C.: 8.95
Refractive Index at 20°C.: 1.5071
Viscosity, Centipoises:
at 5°C.: 467 - at 25°C.: 87.0 - at 50°C.: 22.8
Containers: 50-55 gal. non-returnable steel barrels

PLASTICIZER 50-B is compatible with polyvinyl chloride, polyvinyl acetate and copolymers, polystyrene, polyvinyl butyral, ethyl cellulose, cellulose nitrate, chlorinated rubber and butadiene—acrylonitrile copolymers.

This new plasticizer is of particular value in the compounding and processing of supported and unsupported vinyl films and extruded products. It aids in providing a soft hand, high gloss and clarity to finished materials. Its excellent compatibility and good wetting action during processing help to eliminate calendering and extruding difficulties.

Stocks plasticized with Plasticizer 50-B have high dielectric strength, increased resistance to water absorption and to extraction by mineral oil and good light and heat stability.

DIBUTYL PHTHALATE — A clear high-boiling, water-white liquid widely used as a modifying agent and plasticizer for synthetic elastomers and natural and synthetic resins.

DICYCLOHEXYL PHTHALATE — A white, granular plasticizer used in supported and unsupported vinyl films. Imparts increased toughness and tear strength and materially aids processing.

Barrett

THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.
In Canada: The Barrett Company, Ltd., 5551 St. Hubert St., Montreal, Que.

"Music to our ears..."

Molded by MACK for the Pratt, Read & Company Key Action-Award Winner in the Musical Instruments Classification, Modern Plastics Competition

Mack Molding Company is one of the original plastic molders. Every molding job undertaken is designed, molded and finished to win the prize of complete customer satisfaction. Industry-old experience in choice of materials, mold making and fabrication means you can depend on Mack for the finest in molded plastics—*every time.*

3 PLANTS TO SERVE YOU—EACH COMPLETELY EQUIPPED TO ENGINEER, MOLD AND FINISH YOUR PLASTIC PRODUCTION

MACK MOLDING COMPANY • WAYNE, NEW JERSEY

Mack MOLDED EXCELLENCE

PLANTS AT WAYNE, NEW JERSEY—ARLINGTON, VERMONT—WATERLOO, P. Q., CANADA

Tupperware

Award Winner — Housewares Classification — as used in fine old American Home where gracious living and sturdiness meet in the "American manner".

Canister Sets, Refrigerator Bowls, Cups, Saucers, Pitcher, Creamer, Sugar Bowl, Wonder Bowl with cover and Tumblers are

Tupperware

by
Tupper Corporation

Silver, napery, cutlery, glassware, etc., by others

The Penalty of Leadership

Once, quite a long time ago, an advertisement was written about a very fine automobile. This car was just about the finest of its time . . . it still is, in the consideration of lots of folks.

The caption of that advertisement was the same as this, and among the thoughts expressed was that whenever an individual, an institution or a product has attained such a position, they, or it are in constant competition with themselves.

A position such as this immediately establishes a code of behavior, less than which it is impossible to contemplate. All, occupying this place are bound by this code to become stewards—guardians of sharply defined ideals and principles. Intimate association is possible only with others of comparable stature.

It's no easy position, this one of Leadership. There are temptations . . . constant and insidious, against which there must be unceasing watchfulness and which must be courageously met and sternly and decisively rebuked.

And so, because the story of the ideals that produced a great car and a great organization so closely parallels our own, we liken ourselves, our product and our anticipated future activities to it.

For, when TUPPERWARE is designated as the winner of the only award possible to bestow in its group classification . . . one from among thousands, then are we indeed worthy to put on the mantle of a Leader.

And that this mantle may never lose its significance, it is a natural sequence that we, as custom molders of fine plastics may only serve other comparably fine products, secure in the mutual assurance that they and we will retain our respective positions through such association.

A communication addressed here may very well initiate a joining of the "winning ways" of Tupper with your own excellent product, to the everlasting credit of both.

TUPPER

TUPPER CORPORATION **FARNUMSVILLE MASS.**

New York Showroom, 225 Fifth Ave.

COPYRIGHT 1948

HOW MANY OF THESE PRODUCTION PROBLEMS ARE YOURS ?

RADIO INSULATION

Looking for high insulation resistance, low radio-frequency losses, high mechanical strength, resistance to extremes of temperature or humidity? Note the following properties of Taylor Grade XXXP-1.

24 hour water absorption—1/16" thickness	0.35%
Loss Factor 10^6 cycles—after 24 hours in water	0.12
Dielectric Strength—1/16" thickness (V.P.M.) short time test	690
step by step test	640
Insulation Resistance 4 days at 90% R.H., 96°F. (megohms)	500,000

ARC RESISTANCE

Have you experienced equipment breakdowns due to tracking or arcing? Taylor Vulcanized Fibre, Melamine Laminates, and combinations of Taylor Vulcanized Fibre and Phenol Fibre Grades XP-2 and C-2 have proved very satisfactory for many applications. Where high temperatures prevail, Taylor Glass Base Melamine Laminates, Grades G-5 and G-6, are particularly recommended.

HIGH STRENGTH PLUS HEAT RESISTANCE

Taylor Grade AAA asbestos mat laminate is offered for applications requiring high heat resistance plus high mechanical strength, at a low cost.

Note these properties of Grade AAA:

Tensile Strength—Lengthwise 20,000 p.s.i.
Crosswise 13,000 p.s.i.
Flexural Strength—Lengthwise 25,000 p.s.i.
Crosswise 19,000 p.s.i.
Compressive Strength—Flatwise 50,000 p.s.i.
Heat Resistance—Continuous 300°F.—Intermittent 350°F.

CORROSION RESISTANCE

For applications requiring high resistance to the chemical action of acids and alkalies, plus high mechanical strength . . . such as barrels for plating solutions . . . Taylor Grades C-5 and L-5 (fabric base Melamine Laminates) are outstanding. For moderate concentrations of acids or weak alkalies, Taylor Grades C-4 and L-1 (fabric base Phenol Laminates) are equally effective and cost less.

INSULATION OF ARMATURE SLOTS, FIELD COILS

High in dielectric strength, Taylor Insulation (Fishpaper) withstands severe bending without cracking, resists abrasion from contact with rough spots in machined slots. Available in sheets, continuous rolls, and ribbon rolls.

FORMING TO INTRICATE SHAPES

Taylor Phenolastic Fibre, Grade C-7, adapts easily to compound curves, and other intricate shaping operations . . . yet retains all the desirable physical properties of Taylor Grade C. Among these properties: high tensile, flexural, and impact strength; good resistance to wear; dimensional stability.

Regardless of the problem . . . if Laminated Plastics can help solve it, Taylor Fibre engineers are at your service. Please make your inquiry as specific as possible.

TAYLOR FIBRE COMPANY

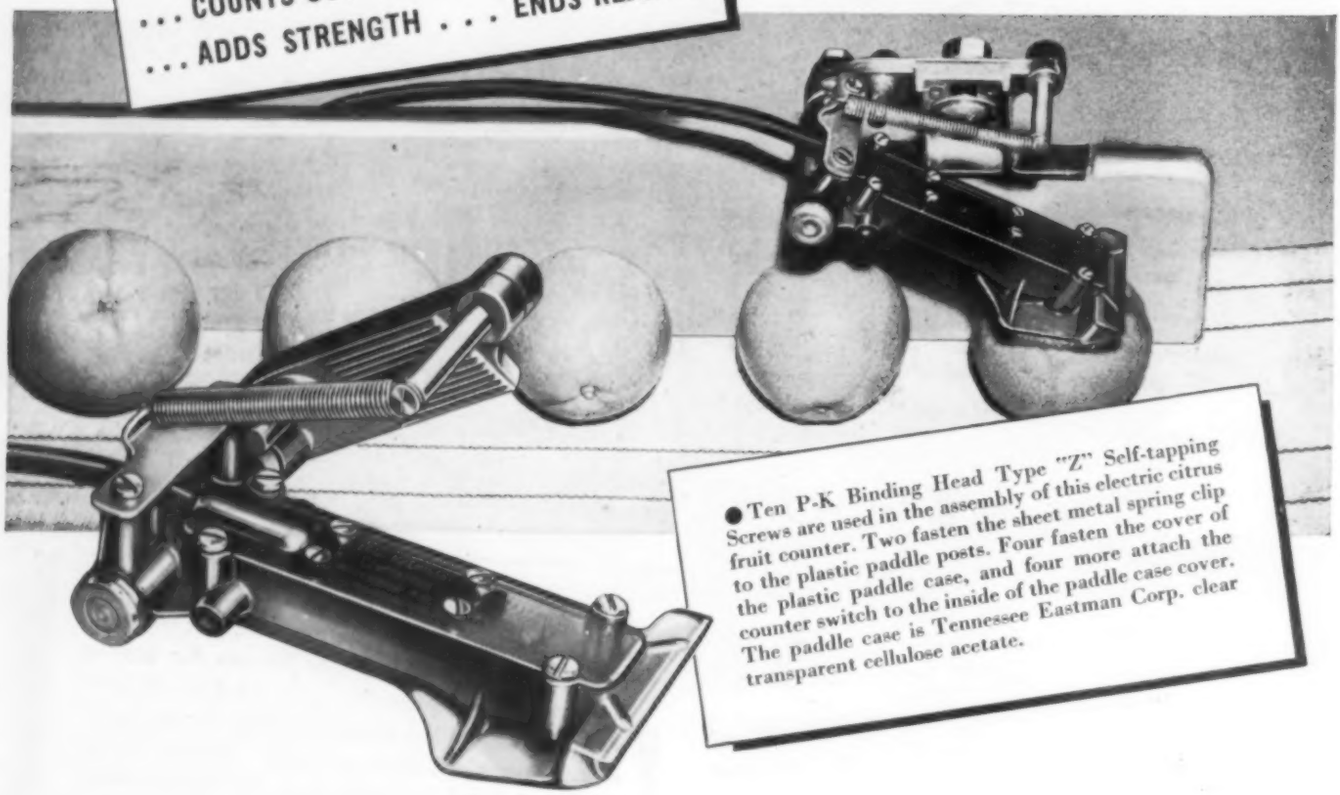
LAMINATED PLASTICS: PHENOL FIBRE • VULCANIZED FIBRE • Sheets, Rods, Tubes, and Fabricated Parts

NORRISTOWN, PENNA. **Offices in Principal Cities** **Pacific Coast Plant: LA VERNE, CAL.**

COMMON SENSE ASSEMBLY ENGINEERING

Makes "impractical device" ... practical

... COUNTS OUT 10 TAPPING OPERATIONS
... ADDS STRENGTH ... ENDS REJECTS



● Ten P-K Binding Head Type "Z" Self-tapping Screws are used in the assembly of this electric citrus fruit counter. Two fasten the sheet metal spring clip to the plastic paddle posts. Four fasten the cover of the plastic paddle case, and four more attach the counter switch to the inside of the paddle case cover. The paddle case is Tennessee Eastman Corp. clear transparent cellulose acetate.

"This entire unit would have been impractical without P-K Self-tapping Screws" says **Food Machinery Corporation,** who make this electric citrus fruit counter to speed the packing of oranges after they have been sized.

With machine screws, costly, work-slowing difficulties were experienced in the assembly of the plastic and metal parts. Rejects ran high when holes had to be tapped, and often the device failed when screws pulled out during the counting of as many as 50,000 oranges daily.

By switching to P-K Self-tapping Screws, these problems were quickly overcome. Ten tapping operations were eliminated . . . rejects were a thing of the past. In the words of the manufacturer, "P-K Self-tapping Screws have much better holding qualities . . . gave the counter the trouble-free sturdiness it needed."

Why not gain the benefits of common sense engineering in your product assembly? Question every fastening in your product. Find out if tapping and mold-slowing inserts can be avoided, and product design simplified, by the simpler P-K method.

Call in a P-K Assembly Engineer. In seven out of ten cases, he can demonstrate that P-K Self-tapping Screws will save up to 50% in assembly work hours. If you prefer, mail assembly details for recommendations. Parker-Kalon Corp., 200 Varick St., New York 14, N. Y.

Sold Only Through Accredited Distributors

P-K® *The Original*

A TYPE AND SIZE FOR EVERY METAL AND PLASTIC ASSEMBLY

PARKER-KALON SELF-TAPPING SCREWS

PARKER-KALON PRODUCTS COLD-FORGED SOCKET SCREWS, WING NUTS, THUMB SCREWS • HARDENED SCREWNAILS AND MASONRY NAILS
SHUR-GRIP FILE AND SOLDER IRON HANDLES • METAL PUNCHES • DAMPER REGULATORS AND ACCESSORIES

"MOONGLO"

A New and Exclusive Beauty Bonded Formica Pattern

For your convenience Formica has revised the almanac. A new moon is assured for New York, September 27 to October 1.

At the Annual Society of Plastics Industry Exposition in New York, Formica will introduce a new pattern that is far and away the most intriguing design ever developed in laminated plastics.

"Moonglo" is not a reproduction of any existing pattern of man or nature. Its development, though highly technical, was not mechanical. It was achieved through a process combining art and 'know-how' with science and research. This process is the exclusive property of Formica in the laminated plastics industry.

We cordially invite you to visit the Formica Display at the Exposition (Booth 38) for a Preview of the brand new Formica pattern "Moonglo".

Beauty Bonded
FORMICA
Reg. U. S. Pat. Off.
at Home with People at Work in Industry

REPLACEMENT OR REFUND OF MONEY
Guaranteed by Good Housekeeping
IF NOT AS ADVERTISED THEREIN

DOIN' WHAT DON'T COME NATCHERLY!

IF you think that molding nylon comes naturally, you've got another guess coming.

It took us years at Boonton to develop methods and learn the tricks. Now we've got it down to the point where we use nylon for some of the finest plastic molded products you've ever seen. But there's a hitch. Suddenly the demand for nylon plastic molding is slacking off, to put it mildly. So we'd like to point out that nylon is a mighty good basic raw plastic material because:

1. **It's tough and flexible**
2. **It has high heat resistance**
3. **It has low specific gravity**
4. **It has high resistance to most industrial chemicals**
5. **It's thermo-plastic**

Of course, we could hit you over the head to make the point stronger. But we think it's already clear that Boonton-molded nylon might be the answer for *your* product.

Plus a very important fact: Boonton's engineers, with 25 years of experience molding plastics, will be glad to confer with your engineers before your product reaches the purchasing stage, and advise on economical changes. Those engineers of ours can be very helpful.

Why not write or phone today?

THE BOONTON MOLDING COMPANY
Boonton 3, N. J. BOonton 8-2020

Boonton

MOLDERS OF MOST PLASTICS BY MOST METHODS

The best **RIGID PLASTIC BOXES** *are Injection Molded by* **TRI-STATE**

Notice!

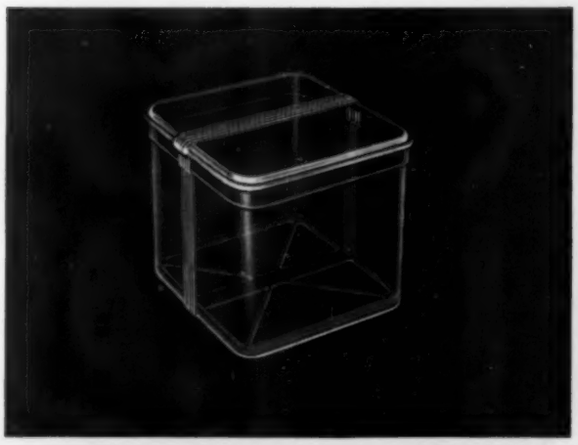
We are the sole inventors and originators of the clear rigid plastic boxes shown here. Patents have been applied for on all these designs. Infringers *will be* prosecuted.

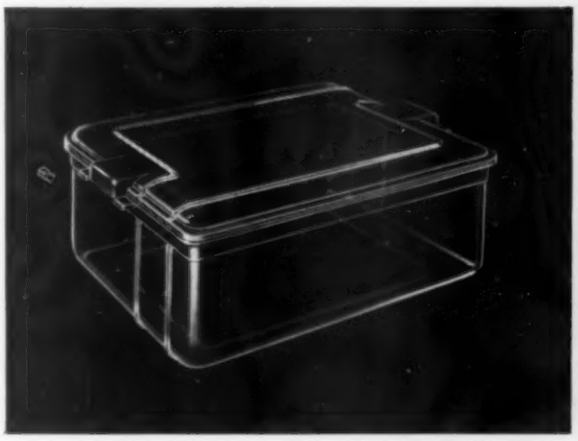
Yes, we did it first!

We were the first to develop the successful technique of injection molding rigid plastic boxes. Now selling at new low prices, over thousands of counters in stores throughout the nation, these wonderful containers have attained the success we worked so hard to achieve.

So, naturally, we're proud!

Not of these refrigerator boxes alone. We're proud, too, of the know-how we've acquired in injection molding rigid plastic containers to any job specifications. We're equipped to quickly and expertly produce odorless, shatter-proof, sturdy packages to your specifications or in a wide range of available stock sizes and shapes . . . all the colors of the spectrum . . . opaque or clear as polished plate glass.





TRI-STATE PLASTIC MOLDING COMPANY

HENDERSON, KENTUCKY

New York Offices: 12 E. 41st Street — Murray Hill 3-6572

It was news then†... It's

Reprinted from the July, 1948, issue of MODERN PLASTICS.

FIBERGLAS*

...for sailboats with sales appeal

Here's a light, durable, seaworthy sailboat that offers a definite sales appeal to yachting enthusiasts. Its sleek, all-plastic, seamless hull eliminates the customary caulking and scraping chores.

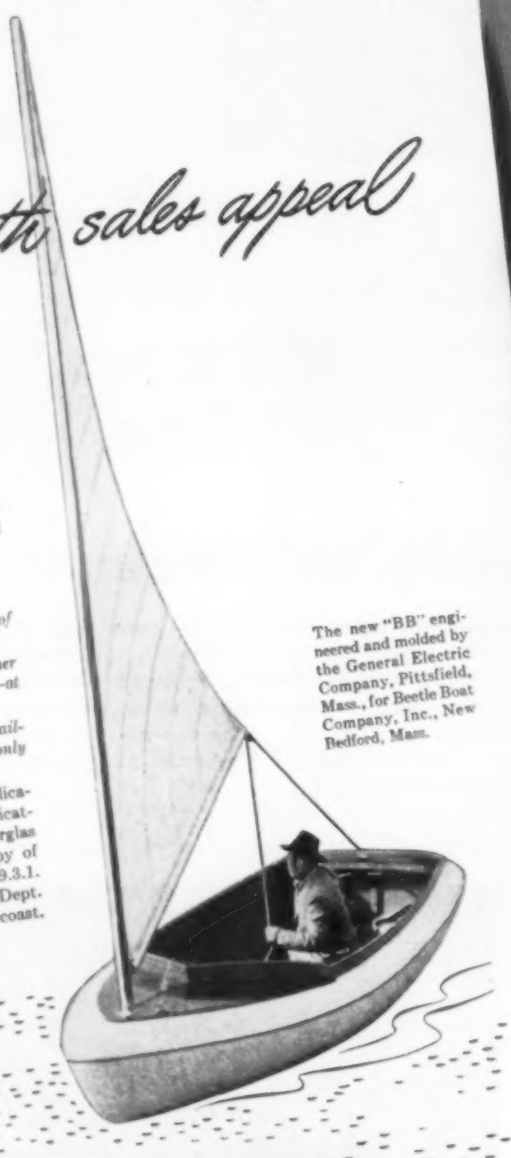
The hull, mast socket and center-board trunk, and part of the deck are all formed from Fiberglas Mat and a thermosetting resin in one operation, at low pressure in a single, giant-size mold.

Fiberglas reinforcements are helping many designers and manufacturers produce laminated plastics products that are:

- *Light in weight and extremely tough.*
- *Resistant to corrosion and rust.*
- *Permanently colored: Eliminates original cost of surface finishing—no maintenance cost.*
- *Easy to fabricate: Can be formed with either high- or low-pressure laminating equipment—at minimum tooling cost.*
- *Economical: Fiberglas reinforcements are available, today, priced lower than most commonly used laminating reinforcing materials.*

For information on the properties, applications, economics and typical methods of fabricating products of plastics reinforced with Fiberglas Mats, Cloths and Fibers, write for a copy of "Fiberglas-Reinforced Plastics" Manual A9.3.1. Owens-Corning Fiberglas Corporation, Dept. 97RP, Toledo 1, O. Branches from coast to coast.

In Canada: Fiberglas Canada Ltd., Toronto, Ontario.



The new "BB" engineered and molded by the General Electric Company, Pittsfield, Mass., for Beetle Boat Company, Inc., New Bedford, Mass.

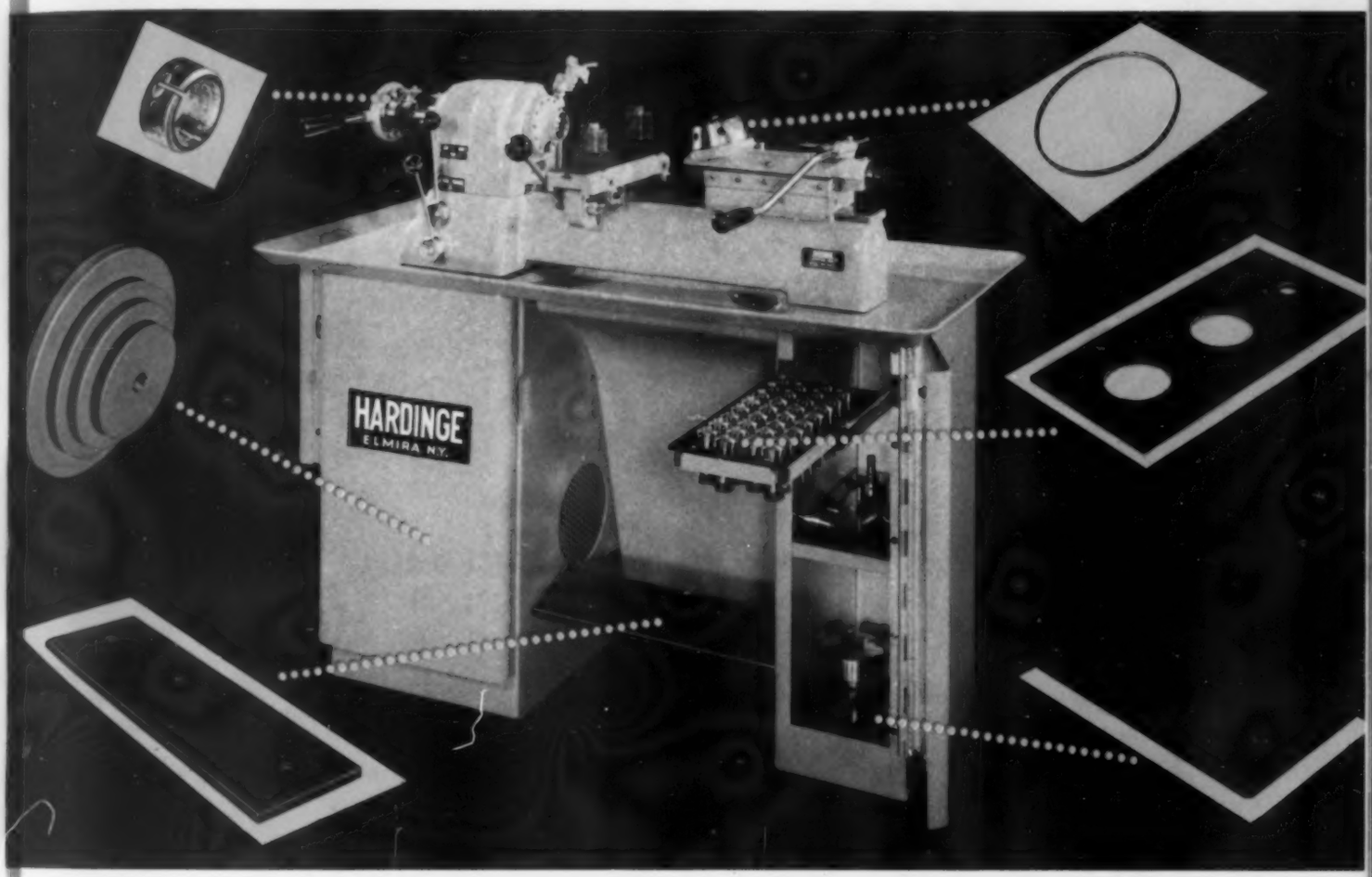
OWENS-CORNING **FIBERGLAS** PLASTICS REINFORCEMENTS

*Fiberglas is the trade mark (Reg. U. S. Pat. Off.) for a variety of products made of or with glass fibers by Owens-Corning Fiberglas Corporation.

Plastics where plastics belong ***for strength, light weight; wear resistance and anti-frictional qualities.***

Most important of Synthane's advantages is its unusual combination of chemical, electrical and mechanical properties. Structural strength, moisture and corrosion resistance and light weight are only a few of these characteristics that fit Synthane for so many applications. An excellent electrical insulator, our type of laminated plastics is hard, dense, durable, quickly and economically machined . . . it's the set plastic, stable over wide variations in temperature.

Synthane's versatility is demonstrated by its use for seven different parts and purposes in this Second Operation Machine.



The High Speed Precision Second Operation Machine (above), plays an important role in the high speed finishing of automotive accessories, aircraft fittings and fine instrument parts. In the rotating members especially, Synthane's light weight means quicker starting and stopping and higher speeds with less friction.

If these few of Synthane's many properties suggest its use in your product, let us help you with design, materials or completely fabricated parts. Write today for complete Synthane plastics catalog. 8 River Road, Oaks, Pa.

SYNTHANE ***where Synthane belongs***

DESIGN • MATERIALS • FABRICATION • SHEETS • RODS • TUBES
FABRICATED PARTS • MOLDED-MACERATED • MOLDED-LAMINATED

Against these Common Corrosives

you're safer with Synthane

A desirable property of SYNTHANE Laminated Plastics is the ability to withstand comparatively high concentrations of many common corrosives over long periods of time. While not 100% corrosion proof, SYNTHANE is used in hundreds of applications because it often retains its shape, size, and strength for a longer time, and has a longer life per dollar invested, than other materials.

Parts fabricated from SYNTHANE resist the action of corrosive waters and atmospheres, chemical salts and solutions, gasoline and other petroleum products. In addition, SYNTHANE is light in weight, mechanically strong, an excellent electrical insulator and easy to machine.

If these properties suggest new uses for SYNTHANE let us help you before you design; we may be able to save you time, trouble and money. Send for your free copy of the SYNTHANE Plastics Catalog. Use the handy coupon.

SYNTHANE CORPORATION, 8 River Road, Oaks, Pa.

Gentlemen:

Please send me without obligation a complete catalog of SYNTHANE technical plastics.

Name _____

Company _____

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City _____

Zone _____ *State* _____

for more answers on plastics

SYNTHANE

PLAN YOUR PRESENT AND FUTURE WITH SYNTHANE TECHNICAL PLASTICS · SHEETS · RODS · TUBES · FABRICATED PARTS · MOLDED-LAMINATED · MOLDED-MACERATED

in the headlines now

May we add our congratulations to:

BEETLE BOAT COMPANY, INC., New Bedford, Massachusetts—for the award won by its "BB" sailboat in the Sporting Goods Group of the Seventh MODERN PLASTICS Competition.

And to:

GENERAL ELECTRIC COMPANY, Pittsfield, Massachusetts—who engineered and low-pressure-molded the "BB" of plastics reinforced with Fiberglas* Mat.

This prize-winning sailboat will be on display at the Third Annual Plastics Exposition. Visit our booth and, if time permits, drop in at our New York Building, 16 East 56th Street, where you will see new and interesting plastics products made with Fiberglas Reinforcements—and other applications of Fiberglas in its many forms. Owens-Corning Fiberglas Corporation, Department 876, Toledo 1, Ohio. Branches in principal cities.

In Canada: Fiberglas Canada Ltd., Toronto, Ontario.

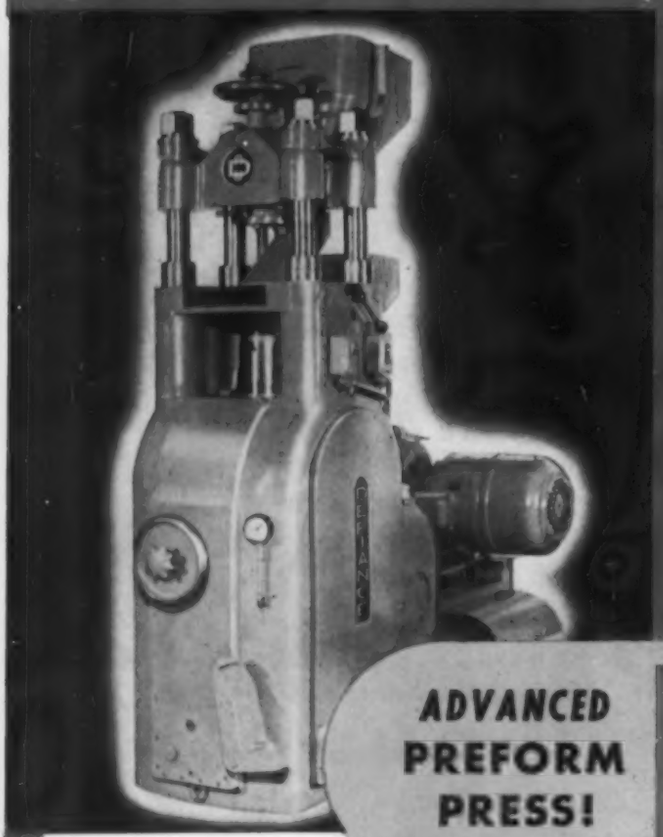
OWENS-CORNING
FIBERGLAS
PLASTICS
REINFORCEMENTS

*FIBERGLAS is the trade-mark (Reg. U. S. Pat. Off.) for a variety of products made of or with glass fibers by Owens-Corning Fiberglas Corporation.

DEFIANCE PRESSES

Increase Production

IN PREFORMING AND MOLDING!



ADVANCED PREFORM PRESS!

NEW TRI-DYNE MOLDING!

Defiance Model 20 has outstanding performance record of many years serving the plastics industry. Now with new advanced features, including: *Positive Pressure Lubrication with electrical interlock* . . . press won't start until oil has been pumped to all moving parts. *Improved Feeder Construction* minimizes material losses. *New design locks* on pressure and fill adjustments. 75 ton capacity. Write for bulletin—also, on Model 45, 200 ton capacity.

Defiance Model 153 Tri-Dyne Molding Press employs exclusive new process! *Fast Heating*—in the press—reduces overall molding cycles, increases production 20% to 90%. *Thorough Mixing* assures uniform heating, uniform cure, uniform product. *Accurate Moisture Control* regulates moisture content to control shrinking, warping, strength and electrical properties. Time tested in 18 months production at Plastics Research Products, Urbana, Ohio. Write for bulletin.

See us! Booth 73

Plant records show that Defiance Presses *increase production . . . save labor . . . reduce costs!* Let us help you with preforming and molding problems. Write . . . Defiance Machine Works, Inc., 2325 Madison Ave., Toledo 2, O.

DEFIANCE PLASTIC PRESSES

98 YEARS OF PRECISION MANUFACTURING

SHELL DUTREX 20

Plasticizer and Extender for Vinyl Resins and Buna N Synthetic Rubber

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Direct inquiries to:

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SHELL OIL COMPANY OF CANADA, LIMITED
25 ADELAIDE ST., EAST, TORONTO, CANADA

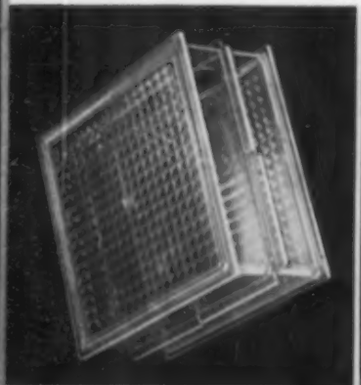
MADE OF

STYRON®

AMERICA'S

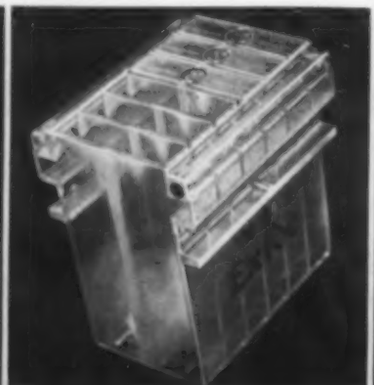
No. 1

Below are the six Styron products receiving awards in five classifications of the Seventh Modern Plastics Competition. This achievement in plastics again proves the merit of the right plastic in the right place.



COLUMBIA PROTEKTOSITE BLOCKS

Molded and distributed by Columbia Protektosite Company, Inc., Carlstadt, New Jersey.



EXIDE BATTERY

Developed, designed and molded by Proven Division, Prophylactic Brush Company, Florence, Mass. Made for The Electric Storage Battery Company, Philadelphia, Pennsylvania.

PARAVOX HEARING AID

Molded by Vichek Tool Co., Cleveland, O. Distributed by Paravox Inc., 2056 East Fourth St., Cleveland, O.

TUPPER BOWLS

Molded and distributed by Tupper Corporation, Farnumsville, Mass.

FOR PRIZE-WINNING PRODUCTS

The Dow Chemical Company is proud to receive significant awards for Styron (Dow Polystyrene) in six outstanding products entered in the Seventh Modern Plastics Competition. Behind Styron's unique qualities stand Dow's great research and technical service. But it remains for the engineering skill and ingenuity of the molders and manufacturers who work closely with Dow to translate these qualities into better plastic merchandise. It is only by *working it out together* that prize-winning products are made possible.

Dept. T-33 Plastics Division
THE DOW CHEMICAL COMPANY • MIDLAND, MICHIGAN

PLASTIC

LITTLE HOMEMAKER DOLL HOUSE FURNITURE

Molded and distributed by Plastic Art Toy Corporation of America, 1 Maple Street, East Rutherford, N. J.

KOO ZOO BLOCKS

Molded and distributed by Kasan, Incorporated, Henderson, Ky.

DOW Plastics

free

NEW SALES AND ENGINEERING IDEAS IN PLASTICS

• *A book you'll use over and over again* . . . valuable for its discussion on "How to Buy Plastics Parts" and for its latest engineering information with charts and tables for your ready reference—*all* important to the engineer and purchasing agent using plastics.

52-pages in color . . . with full-color reproductions and discussions of outstanding jobs engineered and molded in plastics. It illustrates the complete facilities *you* require to design, engineer, tool, mold, and finish plastics in mass production quantities.

Offered to manufacturers using plastics.

write for it on your letterhead

AMOS MOLDED PLASTICS

Custom molders of plastic parts and products • Injection molding specialists

502 Kyle Street • Edinburg, Indiana

Visit us at Booth No. 286
1948 National Plastics Exposition.

Your plastic product .....and AMOS

Many materials look alike. This label tells you it's genuine Rucoam.

I'll be seeing you...

...at the National Plastics Exposition

(BOOTH 230-231)

Fabricators are fast discovering the outstanding virtues of wondrous RUCOAM film. Formulations are specially developed for new colors . . . extra stability . . . smoothness of texture . . . luxurious "hand". It will not craze, crack, scuff, mildew, fade. Tests show its superior resistance to streaks, abrasions, acids, alkalies, alcohol, perspiration. Meets California State Law fire safety standards . . . will not flash or support combustion. Just what you want for products using 3 to 22 gauge.

You can use Rucoam for these and thousands of other items!

HOME FURNISHINGS
APPLIANCE COVERS
BEDSPREADS
CHAIR PADS
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DRAPES
GARMENT BAGS
HANGER PROTECTORS
LAMPSHADES
SHELF TRIM
SHOE BAGS
SHOWER CURTAINS
SLIPCOVERS
TABLE COVERS
UPHOLSTERY

BABY THINGS
BABY PANTS
BATHINETTES
BIBS
CARRIAGE COVERS
CRIB SHEETS
LAUNDRY BAGS
MATTRESS COVERS

RAINWEAR
HAT COVERS
RAIN BOOTIES
WOMEN'S RAIN CAPES
MEN'S RAINCOATS
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WALLETS

Lux tested for washability.

Constant testing, with continual research for future development, safeguard Rucoam's surpassing performance.

RUCOAM is made solely by

RUBBER CORPORATION OF AMERICA

274 Ten Eyck Street, Brooklyn 6, New York

Only PHILLIPS RECESSED HEAD SCREWS

have driver sizes *engineered in BALANCE* with ALL screw sizes . . .

OF ALL SCREW SIZES used in industry, the percentages shown are driven with each of the four driver sizes.

ONE DRIVER SIZE is adequate for the great majority of assemblies—No. 2.

FOR SMALLER OR LARGER SCREWS you want a driver proportioned to the screw to prevent overdriving or underdriving . . . for the same reasons that you use a tack hammer for tacks or a sledge hammer for spikes.

DRIVERS SHOWN ⅓ SIZE . . . RECESSES ACTUAL SIZE

Exhaustive tests in the development of Phillips Screws proved four recess sizes the minimum to assure adequate strength in all head sizes.

Practical Production Assembly *requires*

CONTROLLED DRIVING POWER MATCHED to the SCREW SIZE

Assembly experts know that a driver proportioned to transfer efficiently the power necessary to drive a large, heavy duty screw could be used for smaller screws only at the risk of overdriving.

By using a driver properly proportioned to the screw size, an assembly worker needs no special skill to drive the screw easily and quickly, and seat it correctly, *without overdriving or underdriving.* Overdriving leads to stripped threads and strained screw heads—underdriving impairs assembly strength.

With the Phillips Recess, you know the driver and screw are in perfect *balance,* whatever the size. By varying the length and diameter, the same *balance* is provided in Phillips Bits for hand brace, spiral, or power driving.

To be sure of the driving efficiency and fastening security essential to *practical production driving,* ask for Phillips when you order cross recessed head screws.

SEND FOR THE NEW BOOKLET of facts that tells why you get *all* the advantages of assembly with cross recessed head screws only when you specify Phillips. It's free . . . use the coupon.

GET THIS HELPFUL BOOKLET

Phillips Screw Mfrs., c/o Horton-Noyes Co.
1800 Industrial Trust Bldg., Providence, R. I.

Send me the new booklet—"How to Select Recessed Head Screws for Practical Production Driving".

Name .....

Company .....

Address .....

MP-33

PHILLIPS *Recessed Head* SCREWS

Wood Screws • Machine Screws • Self-tapping Screws • Stove Bolts

27 SOURCES

American Screw Co.
Camcar Products Co.
Central Screw Co.
Continental Screw Co.
Corbin Screw Div. of American Hdwe. Corp.
Elco Tool & Screw Corp.
The H. M. Harper Co.
Lamson & Sessions Co.
Milford Rivet and Machine Co.
National Lock Co.
National Screw & Mfg. Co.
New England Screw Co.
Parker-Kalon Corporation
Pawtucket Screw Co.
Pheoll Manufacturing Co.
Reading Screw Co.
Rockford Screw Products Co.
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Stronghold Screw Products, Inc.
Wales-Beech Corp.
Wolverine Bolt Company

New flame-resistant Monsanto plasticizer

SANTICIZER 141

Now available, Monsanto's newest plasticizer — Santicizer 141 — possesses a lower burning rate than any equally efficient plasticizer used in polyvinyl chloride films. It "flames out" in 1 second flat, compared with minimum burning rates of 38 seconds for other plasticizers having the same general characteristics.

One look at the versatile qualities of Santicizer 141 will show you its possibilities for improving your products, whether they be drapes, curtains, upholstery materials, table cloths, floor tiles, wearing apparel or any similar materials.

In addition to exceptional flame retardance, Santicizer 141 possesses the following advantages:

LOW TOXICITY . . . Tests show Santicizer 141 to be one of the least toxic of all plasticizers.

COMPATIBILITY . . . Highly compatible with vinyl resins. Can be used in varying quantities to produce compounds having a wide range of hardness and flexibility.

PERMANENCE . . . Because of its low volatility, Santicizer 141 imparts long life to any compound in which it is used.

DRAPE . . . Films containing Santicizer 141 have a high degree of softness or drape; are pliable, pleasing to the touch.

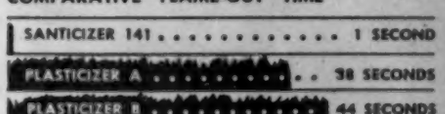
WEATHERING . . . Exposure to sunlight, rain, water and humidity do not cause excessive deterioration in properly compounded films containing Santicizer 141.

TOUGHNESS . . . Santicizer 141 contributes strength, elasticity and abrasion resistance to such products as upholstery and floor covering materials, shoe soles, luggage covering, wire jacketing.

AVAILABILITY . . . New production facilities will shortly assure ample commercial quantities of Santicizer 141, latest example of Monsanto's continuing leadership in the plasticizer field.

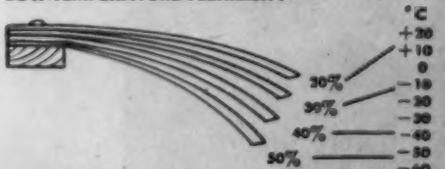
To obtain complete application and technical data on Santicizer 141, write to MONSANTO CHEMICAL COMPANY, Organic Chemicals Division, 1707 South Second Street, St. Louis 4, Missouri. If you prefer, simply return the coupon.

COMPARATIVE "FLAME-OUT" TIME



These burning rates were determined by placing polyvinyl chloride films (each containing 30% plasticizer) directly in contact with intense flame for 30 seconds. The flame was then removed... The film containing Santicizer 141 supported combustion for only 1 second. The other two films, containing other plasticizers, supported combustion for 38 seconds and 44 seconds, respectively.

LOW-TEMPERATURE FLEXIBILITY



The 4 specimen plastic sheets pictured here — containing respectively 20%, 30%, 40% and 50%, by weight, of Santicizer 141 — graphically illustrate the comparative low-temperature flexibilities imparted by Santicizer 141.

Santicizer: Reg. U. S. Pat. Off.

MONSANTO
CHEMICALS — PLASTICS

MONSANTO CHEMICAL COMPANY
Organic Chemicals Division
1707 South Second Street
St. Louis 4, Missouri

Please send me complete information on Santicizer 141.

*Name*_____ *Title*_____

*Company*_____

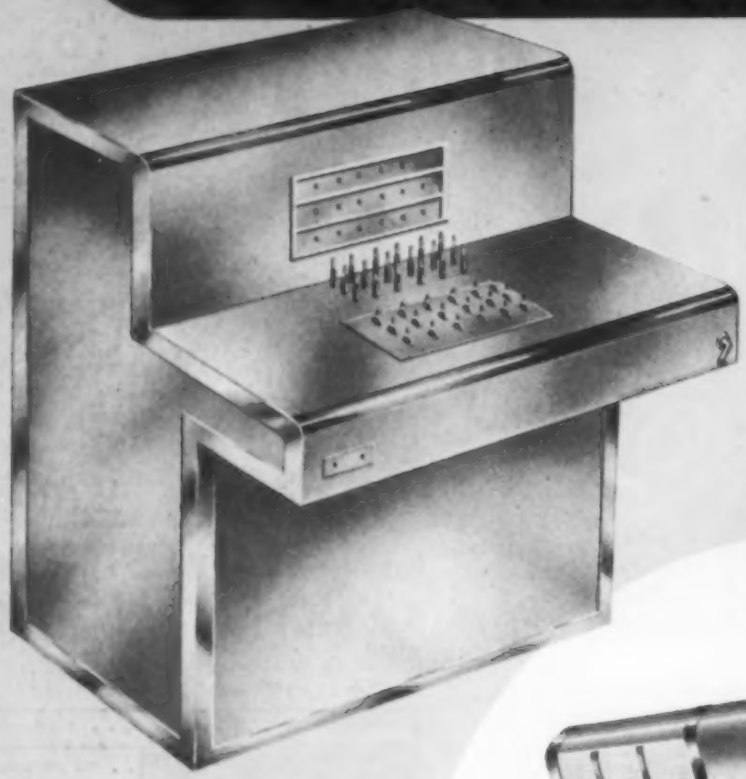
*Address*_____

*City*_____ *State*_____

SERVING INDUSTRY...WHICH SERVES MANKIND

IT LOOKS BETTER — *LONGER*

MADE OF
STAINLESS STEEL
AND
SHEET PLASTIC



P.B.X. SWITCHBOARD
made of stainless steel and sheet plastic

You can't beat stainless steel for lasting self-lustre. As for durability, it is in a class by itself. And when it comes to giving a product permanent sparkle and color, sheet plastic is unique. But sheet plastic has other commendable features. It won't crack, chip or peel. Easy to clean, it eliminates refinishing expense. It will stand up under all kinds of usage, short of sheer vandalism.

Sherron uses both stainless steel and sheet plastic to construct enduring, large scale products that are stand-outs in appearance, and all but free of maintenance problems.

Let Sherron serve you in designing and fabricating your product of stainless steel and sheet plastic.

MERCHANDISE DISPENSER
made of stainless steel and sheet plastic

STAINLESS STEEL AND SHEET PLASTICS · IT'S BEAUTY LASTS

SHERRON METALLIC CORP.

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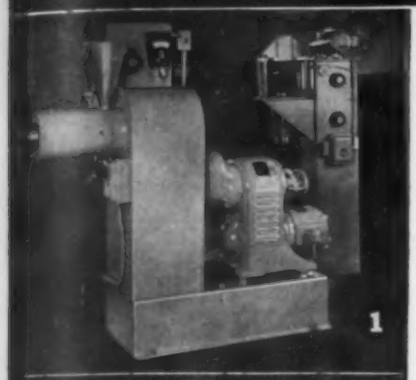
MAKERS OF THE AWARD-WINNING SHERRON ACOUSTIC STAINLESS STEEL AND TEXTOLITE PLASTIC TELEPHONE BOOTH

modern extruding EQUIPMENT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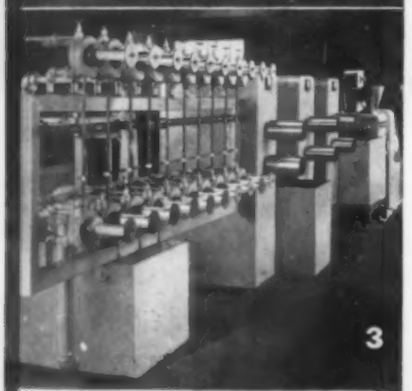
3

4

Visit our exhibit at the
3rd National Plastics Exposition,
Booths 265 and 266, September 27th to October 1st.

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LODI, N.J.

1 1¼" diameter MODERN extruder
2 2½" diameter MODERN extruder
3 1½" diameter MODERN extruder, orienting machine, spooling machine
4 Granulator — for grinding molding sprues or offsize extrusions
5 1½" diameter MODERN extruder
6 4½" diameter MODERN extruder
7 MODERN Conveyor—for use with all extruders
8 MODERN Drying Cabinet—for preheating or drying materials before molding or extrusion

In addition to the units illustrated, the Modern Plastics Machinery line includes 2", 3½" and 6" extruders, a special windup machine for plastic sheeting, complete installations for covering or insulating flat wire and round wire, complete installatons for extruding, orienting and spooling extruded monofilaments, and units for pelletizing uniform molding pellets.

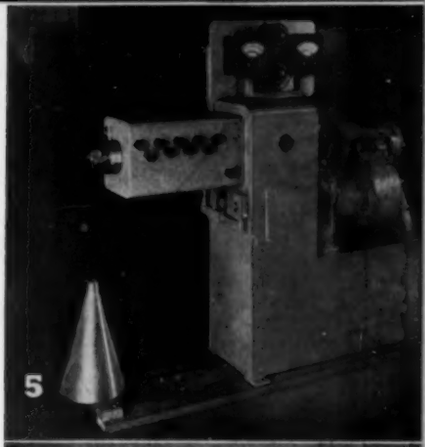
Dies can be supplied for covered wire, tubing, wide sheet, strips, rods, monofilaments, etc.

All Modern Plastics machines are thoroughly inspected and tested before shipment; foreign and domestic customers are invited to see their equipment in actual operation before shipment.

Items produced on Modern Plastic equipment include:

Uniform molding pellets
Insulated wire
Covered corset steel stays
Vinyl garden hose
Wide extruded sheet
Pen and pencil tubing
Knitting needles
"Pearl" jewelry beads
Men's and ladies' belts
Molding strips
Industrial tape
Strips for blanked buttons
Drinking straws
Medical tubing
Electrical tubing
Monofilaments for woven fabrics
Vinyl brush bristles
Covered metal tubing
Tubular sheet for packaging

When sending inquiries, please include all available details of your requirements as to production, materials to be extruded, items to be produced and electrical current characteristics. We can then suggest equipment best suited to your purpose. If we do not manufacture the equipment that fills your needs, we will advise where it can be obtained.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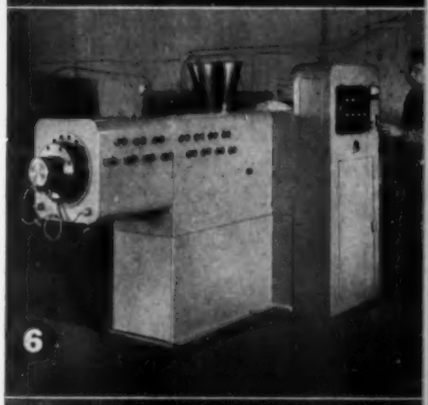
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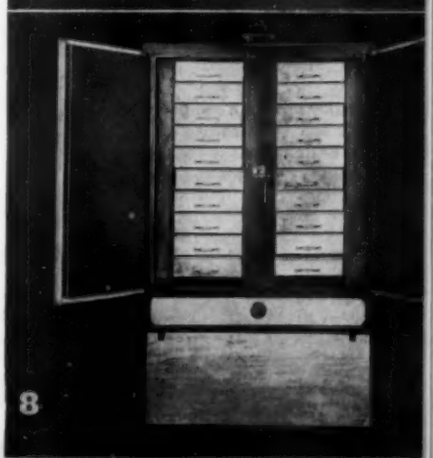
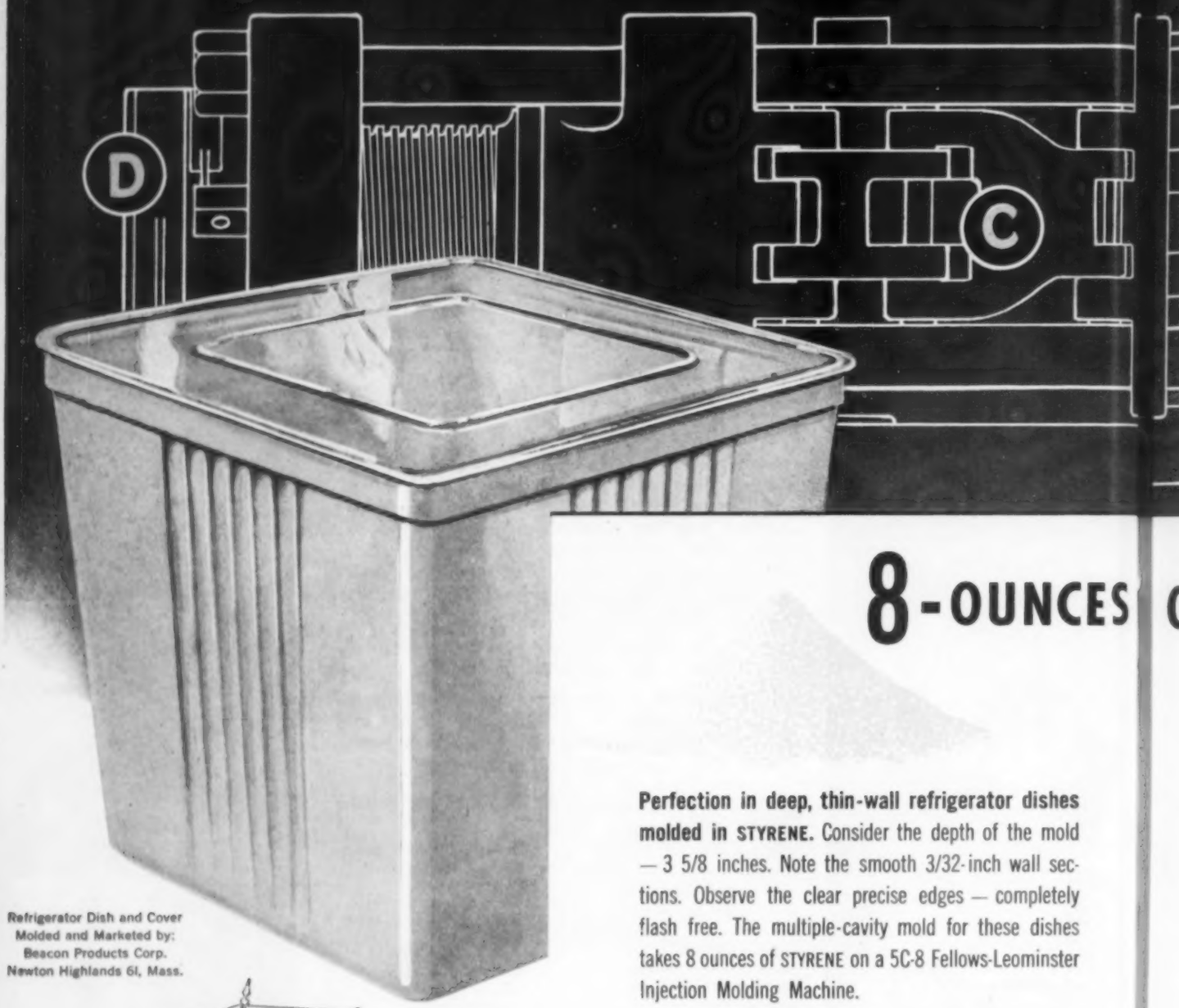

8

SEND INQUIRIES TO:

MODERN PLASTIC MACHINERY CORP.

15 UNION ST., LODI, N. J., U. S. A.

F-L Machine Design



Refrigerator Dish and Cover
Molded and Marketed by:
Beacon Products Corp.
Newton Highlands 61, Mass.

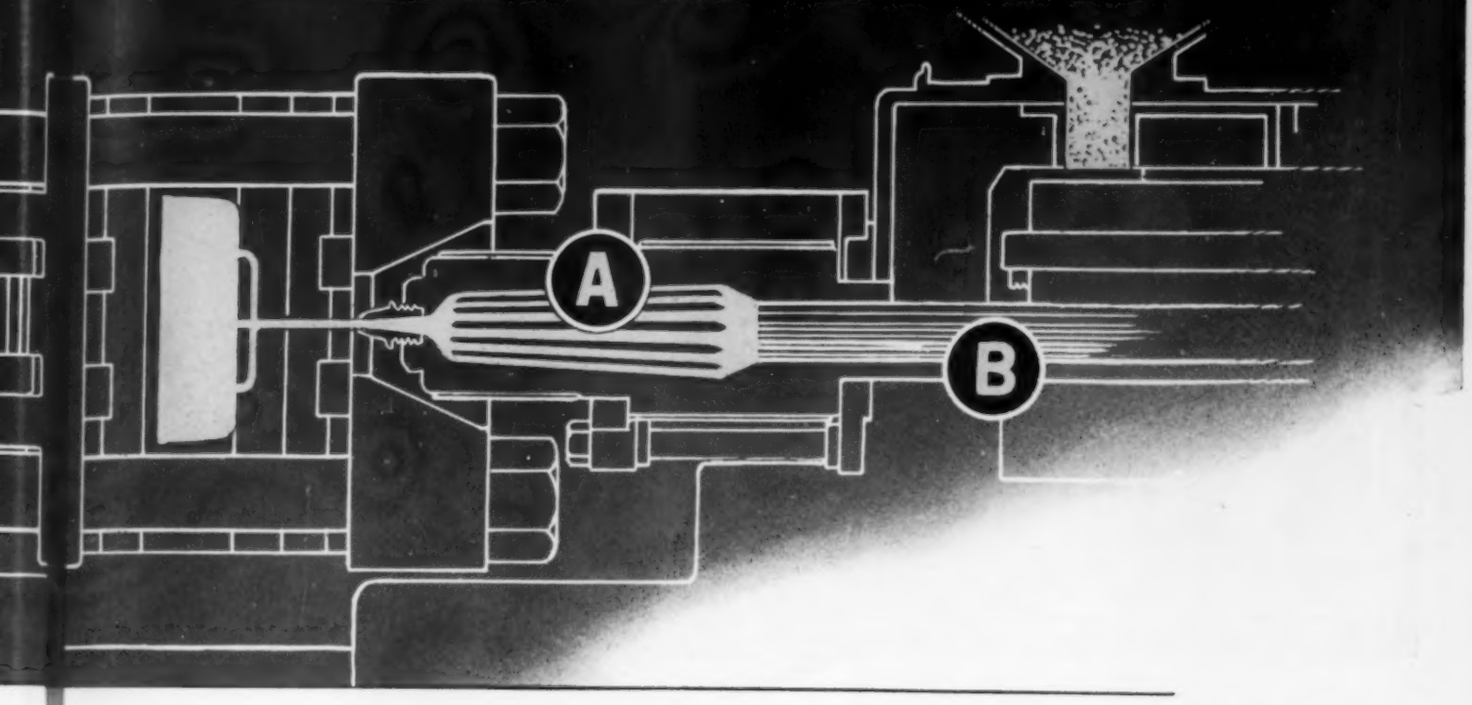
8-OUNCES O

Perfection in deep, thin-wall refrigerator dishes molded in STYRENE. Consider the depth of the mold — 3 5/8 inches. Note the smooth 3/32-inch wall sections. Observe the clear precise edges — completely flash free. The multiple-cavity mold for these dishes takes 8 ounces of STYRENE on a 5C-8 Fellows-Leominster Injection Molding Machine.

This is an excellent example of maximum machine capacity fully utilized; with the production time well under 45 seconds. **It takes the superior "Speed-Flo" heating cylinder, (A) and sensitive control of**

THE FELLOWS GEAR SHAPER COMPANY, Plastics Machine Division, Head Office and Export Dept., Springfield, Vermont. Branch Offices:—

PAYS OFF IN SUCCESSFUL MOLDING PERFORMANCE!



ES OF STYRENE IN ONE SHOT...

high-injection pressure, (B) to do such a job. The F-L Molding Machine with its superior heat transfer efficiency demonstrates decided advantages on tough jobs.

The mold for this refrigerator dish cover has a casting area of **102 square inches. The automatically-centered mold clamping pressure makes all covers equally flash-free.** The mold faces are brought together under toggle-locked continuous pressure, (C) that is absolutely equalized by the centralizing screw, (D). This non-distorting pressure on precision molds is an important factor in holding mold maintenance costs to a minimum.

No discoloration, beautifully clean-cut edges, virtually no rejects...here is vivid demonstration of highly-successful molding performance based upon superior machine design, and excellence on the part of the molder. We suggest you contact our nearest office for complete information on F-L "Speed-Flo" molding equipment.

Fellows
LEOMINSTER

injection molding equipment

616 Fisher Bldg., Detroit 2, 640 West Town Office Bldg., Chicago 12, 7706 Empire State Bldg., New York 1. New England Distributor Leominster Tool Company, Leominster, Mass.

INDUSTRIAL *Molding*

A complete cabinet including loop cover and knobs injection molded in Polystyrene for Olympic Radio and Television of New York

CRUVER MFG. CO.
Est. 1896

MOLDING • FABRICATING • LAMINATING • FINISHING
"BAS-RELEEF" • DECORATING • ASSEMBLY • SPRAYING

2460 WEST JACKSON BLVD., CHICAGO 12, ILLINOIS

NEW YORK 2 West 46th Street | DETROIT General Motors Building | ST. LOUIS Cotton Belt Building

LIQUID

Phenolic Resins

RESINS FOR CASTING FORMING DIES AND TOOLS

HEAT AND ACID RESISTANT CASTING RESINS

WEATHERPROOF COATING FOR WOOD AND POROUS MATERIALS

BRISTLE SETTING CEMENTS

BONDING RESINS AND CEMENTS

LAMINATING AND INSULATING VARNISHES

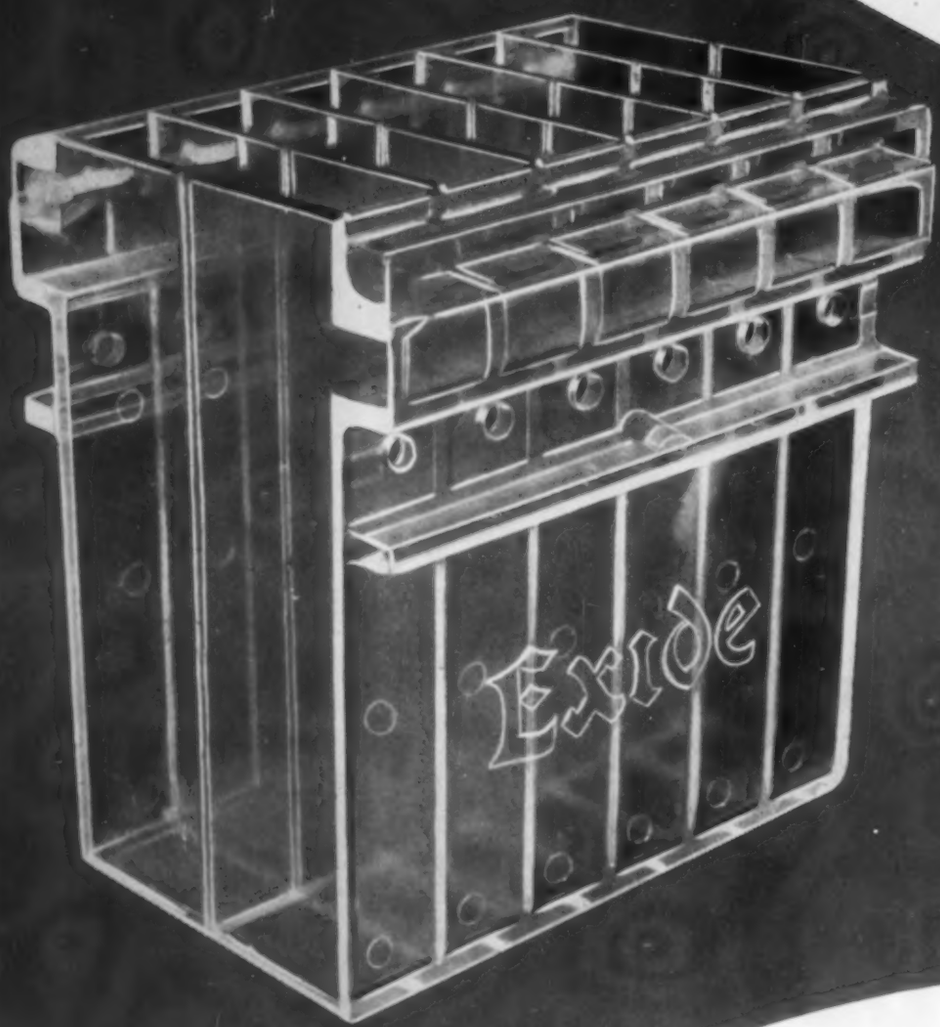
CLEAR PHENOLIC LACQUER

The Marblette Staff of engineers offers its services to help with your manufacturing problems. Write to us outlining your needs.

THE MARBLETTE CORPORATION

Manufacturers of Phenolic Resins since 1929

37-21 THIRTIETH STREET, LONG ISLAND CITY 1, N.Y.



This award-winning Exide battery container, which measures 12" x 8½", was injection molded in two parts, each weighing 4¼ pounds net, by Prolon Plastics.

For Better Quality, Better Service, write to . . .

THE WINNER...MOLDED BY PROLON PLASTICS

● Pictured here is an exceptional example of heavy section injection molding. This Exide battery container is the award winner in the Industrial and Machinery classification of the seventh Modern Plastics Competition. It was molded by Prolon Plastics.

In the words of L. E. Lighton, Vice President in charge of Engineering of the Electric Storage Battery Company: "Prolon Plastics' experience, facilities and cooperation were important factors in our development of this novel storage battery container."

The customer always benefits from Prolon's high standards in planning and production. Whether you need large or small moldings, by compression or injection, Prolon's specialized knowledge and specialized facilities can serve you well.

PROLON PLASTICS

A DIVISION OF PRO-PHY-LAC-TIC BRUSH COMPANY, FLORENCE, MASS.

RESEARCH ★ DEVELOPMENT
DIE-MAKING ★ COMPRESSION
AND INJECTION MOLDING

UNION PACIFIC

The Governor of Kansas *invites You*

STATE OF KANSAS
OFFICE OF THE GOVERNOR
TOPEKA

FRANK CARLSON
GOVERNOR

To American Industry:

Kansas has matchless and abundant resources which await only the magic touch of industry to spread their benefits to the world. Its rich soil produces the essential foodstuffs of life. Beneath the surface is stored in abundance cheap energy to turn the wheels of industry. The possibilities of rich reward are limitless.

The facilities of the State, including the active and aggressive Industrial Development Commission, are pledged to offer every encouragement and assistance in working out the problems of new industries seeking to process and distribute the great natural resources of Kansas, which furnish fertile and almost virgin soil for aggressive modern development. A thorough investigation is always welcomed. Modern transportation permits products of Kansas industry to radiate cheaply to all parts of the country.

Sincerely,

Frank Carlson
Governor

Frank Carlson

* One of a series of advertisements based on industrial opportunities in the states served by Union Pacific Railroad.

Unite with Union Pacific in selecting sites and seeking new markets in California, Colorado, Idaho, Kansas, Montana, Nebraska, Nevada, Oregon, Utah, Washington, Wyoming.

*Address Industrial Department, Union Pacific Railroad
Omaha 2, Nebraska

UNION PACIFIC RAILROAD

Road of the Daily Streamliners

A Cluster of Jewels

BECOMES A LOVELY NEW MATERIAL

Here is a modern material made in the clear, beautiful colors of precious stones. And you will find *Resproid* is as impervious to dirt as the loveliest ruby, sapphire or emerald.

Resproid can be wiped clean as new in seconds with just a damp cloth. Your customers will be delighted at its durability. Good Housekeeping magazine guarantees it to resist cracking, fading, scuffing and abrasion — perspiration, most acids, alkalies, alcohol, oil and grease.

Resproid is made in a wide range of lovely styles and weights — from translucent to thick enough for upholstery — that give new sales appeal to shower curtains, waterproof garments, aprons, cottage sets, handbags, luggage, upholstery, belts—a variety of products as limitless as your own imagination.

With a big, new, full-color advertising campaign in Good Housekeeping magazine telling over 5,500,000 potential customers about *Resproid's* beauty and durability, there's a ready-made market waiting you'll find it easy to cash in on. If you're not already using *Resproid* to increase your sales, send for samples today. **Respro Inc.,** Cranston 10, R. I.

Show either the pink *Resproid* tag or the yellow tag for the *Fire-Resistant* type of *Resproid* on all your *Resproid* products. With the big ad campaign in Good Housekeeping, they're important selling points for you!

Resproid

Resproid Resproid

Guaranteed by Good Housekeeping

This is the Award Winner in the Packaging Group

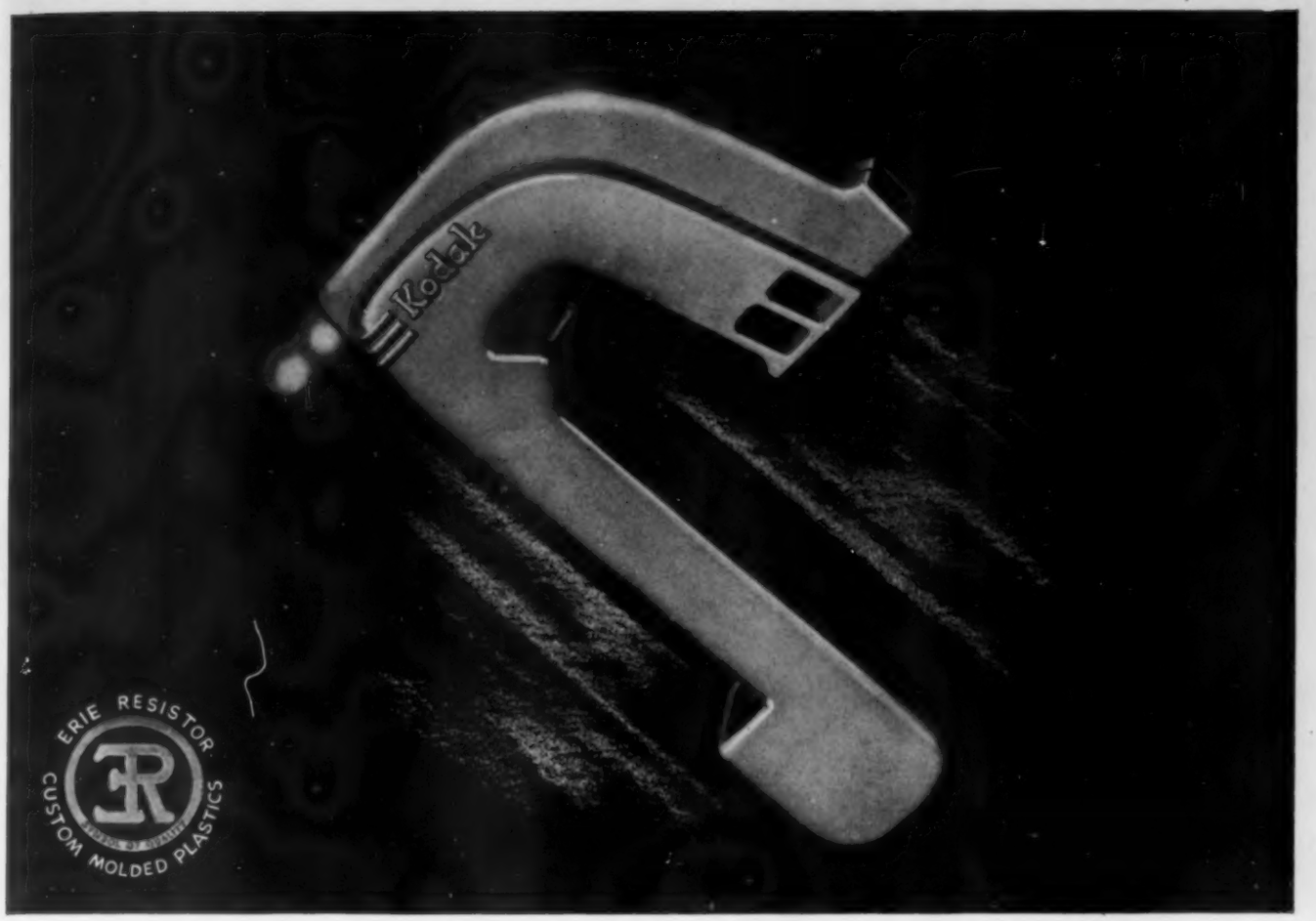
Produced by SHELLMAR for The Cudahy Packing Company, this unique plastic package, first used on Delrich Oleomargarine, is now standard for ten leading brands.

If your packaging problem calls for special abilities in fabrication, alertness in design and versatility in production . . . the answer is, "CALL SHELLMAR."

Sales Offices in Chicago, New York, Cincinnati, Denver, Detroit, Kansas City, Minneapolis, San Antonio, Atlanta, Baltimore, Boston, Philadelphia, Pittsburgh, Los Angeles, Salt Lake City, San Francisco, Seattle.

SHELLMAR
PRODUCTS CORPORATION
MOUNT VERNON, OHIO
SOUTH GATE, CALIF. • ZANESVILLE, OHIO
MEXICO CITY, MEXICO • MEDELLIN, COLOMBIA

PACKAGE MANUFACTURER - PRINTER - LAMINATOR - CONVERTER . . . CELLOPHANE - PLIOFILM - ACETATE - SARAN - VINYLS - FOILS - PAPERS - COATINGS

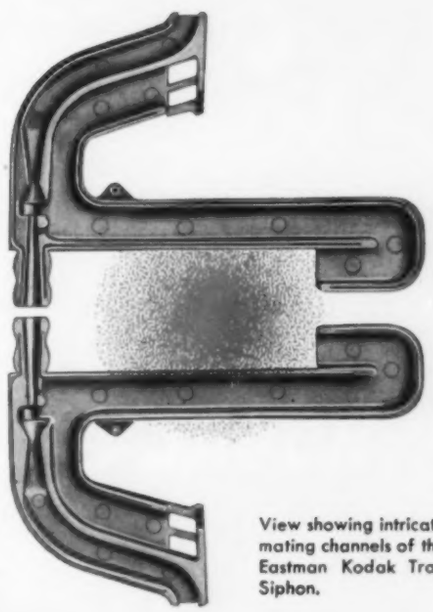


Quality... FROM DIES TO FINISHED MOLDED PRODUCT

CORRECT and accurate dies are the first essential for quality molded plastics. We design and make dies for Erie Resistor Custom Molded Plastics in our own plant, where expert die makers have the advantage of constant contact with design engineers, chemists, and production chiefs.

If good molded plastics require precision dies, they also demand the best raw materials, chosen with expert knowledge of their fitness to meet the requirements of the finished piece in service. And to shape those materials successfully calls for an intimate knowledge of their behavior in the molding process.

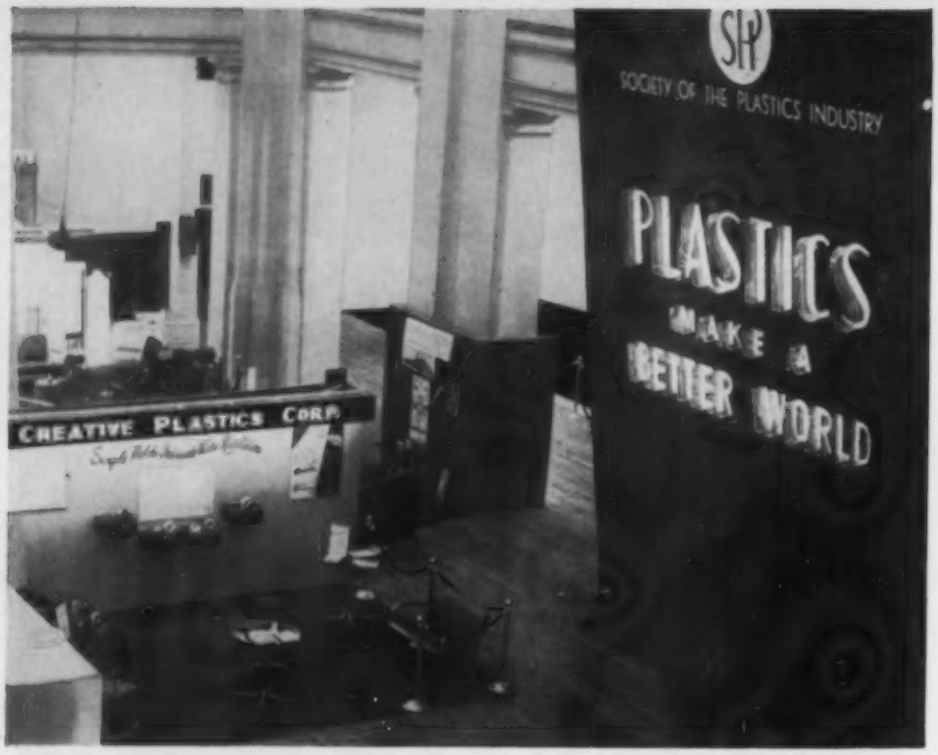
The Kodak® Tray Siphon, shown above, with its intricate convolutions of matching tongue and groove in the two halves, is an excellent illustration of a product requiring a high degree of skill at every step—from dies to finished product.



View showing intricate mating channels of the Eastman Kodak Tray Siphon.

See ERIE RESISTOR Custom Injection Molded Products on Display at Booth No. 89
Third National Plastics Exposition
Grand Central Palace, New York
September 27—October 1

Plastics Division
ERIE RESISTOR CORP., ERIE, PA.
LONDON, ENGLAND TORONTO, CANADA



SEE US AT BOOTH NO.

74

3 SPI SHOWS . . . 3 CREATIVE DISPLAYS WITH THE SAME BIG 3 FEATURES

1. Simple Molds, 2. Intricate Parts, 3. Rich Colors

For the third successive year the crowds at the SPI show will cluster around the sparkling new plastic displays in the Creative Booth. And the economy minded—of whom we expect to see more this year—will be pleasantly surprised to learn how much can be done in the best grades of plastics for so little money—sometimes even involving little or no tool costs.

Creative

PLASTICS CORP.

960 Kent Avenue Brooklyn 5, N. Y.

H&D BOXES

DESIGNED to protect

DESIGNED to display

This corrugated shipping display box is easy to handle in the packing department and provides real product protection in transit. But this is only the beginning. When the box reaches the dealer, it is quickly opened into a colorful, sales producing counter display. It exhibits and merchandises the product at point of purchase and increases sales. For an outstanding sales success consider the H & D Duplex. Consult the H & D Package Laboratory on ALL packaging problems.

HINDE & DAUCH

Authority on Packaging

EFFECTIVE OFFICES: 1805 DECATUR ST. • SANDUSKY, OHIO

H&D

FACTORIES IN:

BALTIMORE 23, MD. • BUFFALO 5, N. Y. • CHICAGO 32, ILLINOIS
CLEVELAND 2, OHIO • DETROIT 27, MICH. • GLOUCESTER, N. J.
HOBOKEN, N. J. • KANSAS CITY 12, KANSAS • KENOSHA, N. C.
MONTREAL, QUEBEC • RICHMOND 12, VA. • ST. LOUIS 15, MO.
SANDUSKY, OHIO • TORONTO, ONTARIO • WATERTOWN, MASS.

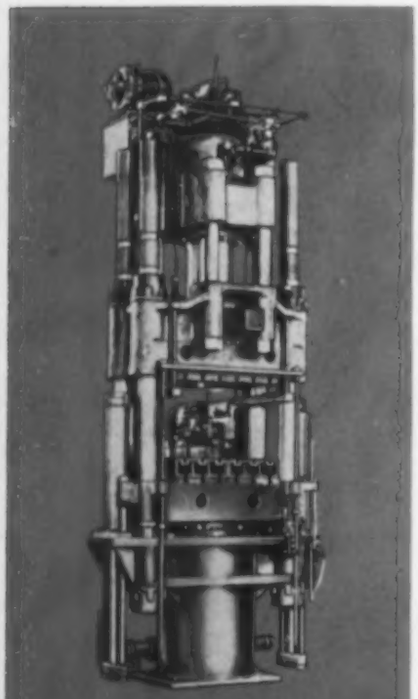
Congratulations . . .

TOLEDO SCALE COMPANY,

The ★ "Winner" . . .

*Store and Business Equipment Division

Toledo
Guardian 70
Duplex Scale

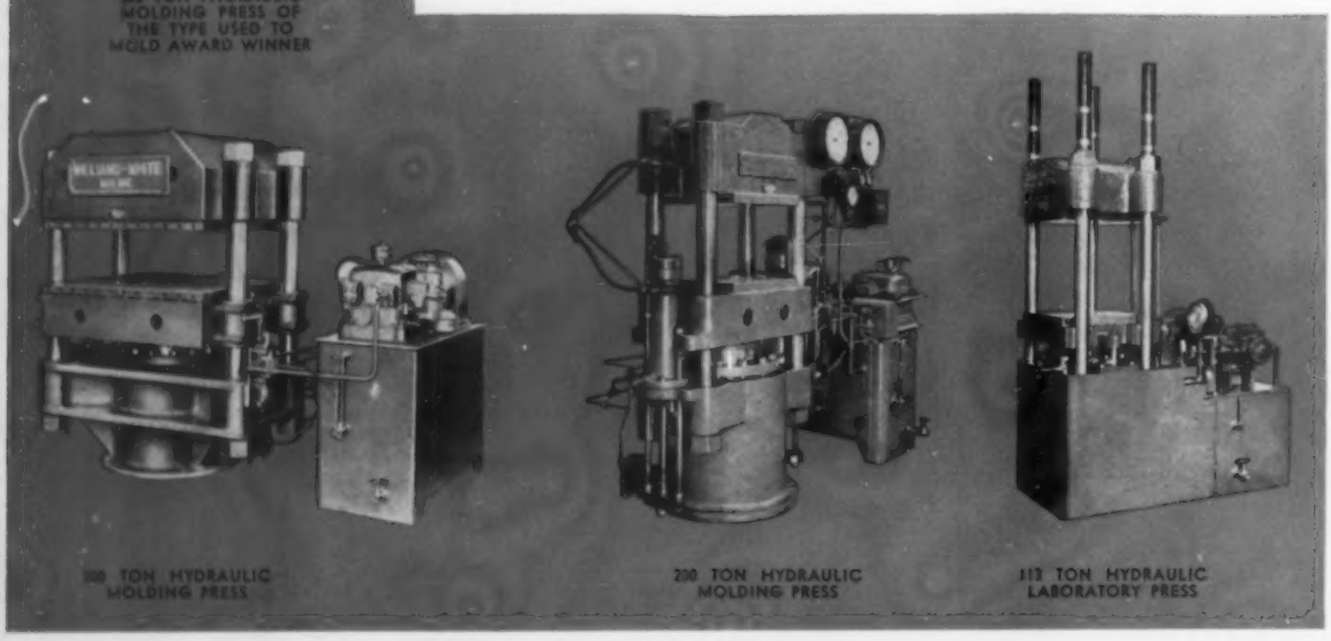


500 TON HYDRAULIC MOLDING PRESS OF THE TYPE USED TO MOLD AWARD WINNER

Molded on WILLIAMS-WHITE Press

We're glad to shine by reflected light . . . it was our equipment on which the award winning product was molded by General American Transportation Company. Congratulations to all who made the award possible for their contributions to the advancement of the Plastic Industry.

WILLIAMS-WHITE & Co.
MOLINE, ILLINOIS



300 TON HYDRAULIC MOLDING PRESS

200 TON HYDRAULIC MOLDING PRESS

112 TON HYDRAULIC LABORATORY PRESS

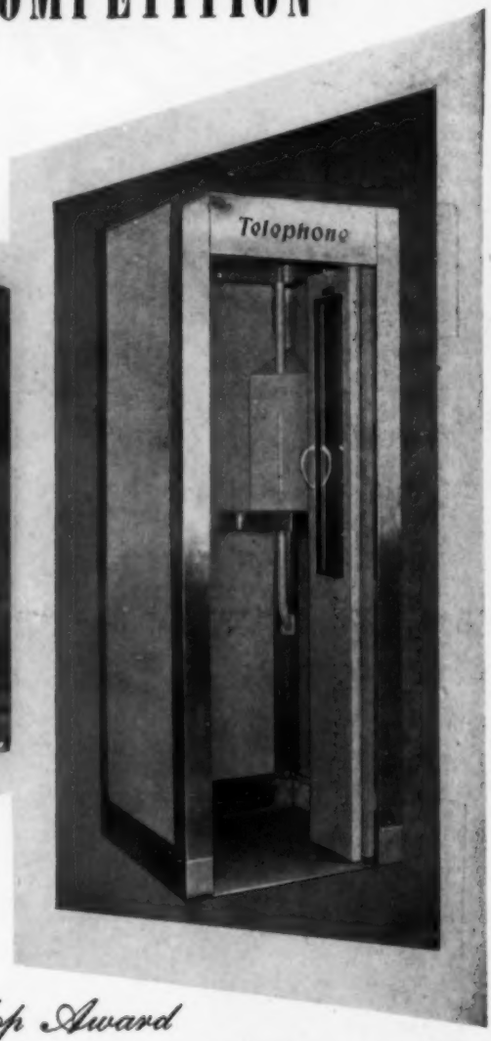
HURLBUT LAMINATING PAPERS

used in 2 Top Award Winners

7th MODERN PLASTICS COMPETITION

Top Award

TRANSPORTATION GROUP—It's the interior of the DeSoto "Suburban", built by Briggs Body Company. For extra strength and extra beauty the laminated panelling was made with Hurlbut saturating papers.



Top Award

TOP AWARD — BUILDING EQUIPMENT GROUP—Telephone booth, a product of Sherron Metallic Corp., of Brooklyn, N. Y., features laminated Textolite walls and ceilings. These laminations were made with high-strength Hurlbut papers.

In both these prize-winning applications—selection of the right laminating papers was of prime importance. In both cases, the papers had to offer the greatest possible resistance to scuffing, scratching, marring and continual rough usage. In both cases, beautiful appearance was a major consideration. . . And in both cases Hurlbut papers were chosen for the job.

Here's why. Highly trained chemists and technicians, specialized processing machinery and rigid inspections insure the high quality of every square inch of Hurlbut papers. That's why these papers are free from flaws, weak spots and variations in density and gauge. That's why you have extra insurance—when they are used in your laminations—that they will more than withstand the service for which they are designed.

Write for information and samples as well as counsel on your specific laminating problems.

HURLBUT *Paper Company*

South Lee • Massachusetts

Always a Winner!

ELMES COMPRESSION
MOLDING PRESS
Versatile · Flexible
Fast

ELMES HYDRAULIC
COMPRESSION AND TRANSFER
MOLDING PRESSES

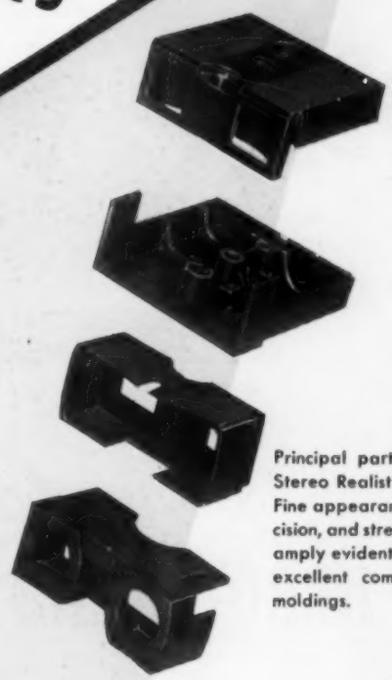
This attractively priced semi-automatic press combines every modern feature for accurate, economical work. Lower knockout is reset by push-button. Made in standard sizes from 100 tons, up. Extra-large die space permits use of standard presses on virtually all job requirements.

Visit Elmes at the National Plastics Exposition, Grand Central Palace, New York, Sept. 27 to October 1. The Elmes booth is right at the head of the stairs as you enter the hall.

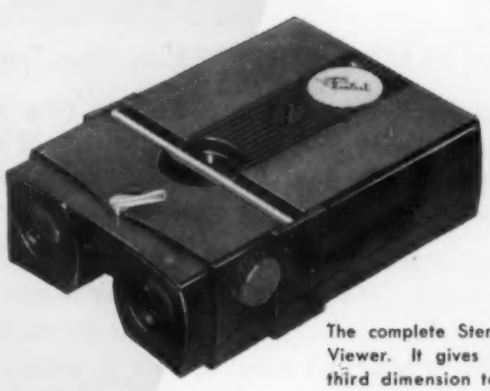
MODERN PLASTICS AWARD

Time and again you've heard it said that Elmes builds *good presses.* Here's more proof! The Stereo Realist Viewer—a product of the David White Company, *compression-molded* on Elmes presses by Chicago Molded Products Corp.—has now won the Modern Plastics Award for photographic equipment.

Good presses and *good* products always go hand-in-hand. That's why busy plants the country over depend on Elmes quality. Elmes presses are *built for performance*—flexibility, accuracy, speed, ease of operation, rugged stamina. Whether you judge a press by what it *is* or what it *does,* you're sure to like the Elmes. Ask *any* Elmes user!



Principal parts of the Stereo Realist Viewer. Fine appearance, precision, and strength are amply evident in these excellent compression moldings.



The complete Stereo Realist Viewer. It gives a realistic third dimension to pictures made by a Stereo Realist Camera which exposes two photographs simultaneously.

ENGINEERED BY ELMES

Good Hydraulic Production Equipment Since 1851

ELMES ENGINEERING WORKS *of* AMERICAN STEEL FOUNDRIES, 225 N. Morgan Street, Chicago 7, Ill.

Also Manufactured in Canada

As clinging as a "human fly"

As clean as a hound-dog's tooth

AERO-BRAND Quality STEARATES

AERO* BRAND STEARATES are clean, pure, fluffy and uniform . . . no grit, no foreign odor.

Why?

Because at Cyanamid, the most modern stearate production and control facilities make them that way . . . *every* batch . . . *all* the time!

Specify AERO BRAND *always*, for whatever kind of stearate *you* need—Aluminum . . . Calcium . . . Magnesium . . . Zinc.

Yes! Prompt delivery, too!

*Trademark

SALES OFFICES: Boston, Massachusetts; Philadelphia, Pennsylvania; Pittsburgh, Pennsylvania; Baltimore, Maryland; Charlotte, North Carolina; Cleveland, Ohio; Cincinnati, Ohio; Chicago, Illinois; Detroit, Michigan; Kalamazoo, Michigan; St. Louis, Missouri; Los Angeles, California; San Francisco, California; Seattle, Washington. In Canada: Dillons Chemical Co., Ltd., Montreal and Toronto.

American
Cyanamid Company

Industrial Chemicals Division

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

Award Winner

7TH MODERN PLASTICS COMPETITION

The Briggs Manufacturing Company of Detroit, Michigan, had been using plastic veneer panels in the manufacture of the interior of a station wagon. These panels, however, were costly and the life of the finish varied from 12 to 18 months. They were subject to easy scratching and marring, and because of the high cost only one grain or type of wood could be used.

With the aid of Wrenn color papers, Briggs Manufacturing Company developed a simulated wood panel. The new panel is lower in cost and has a more durable finish.

This is an example of how a quality paper can be used to improve a finished product. In order to produce the panels' uniformity of color, finish and impregnation, a suitable paper is required. Different types of wood finishes are simulated in this manner, affording greater flexibility at a much lower cost than if wood panels were used.

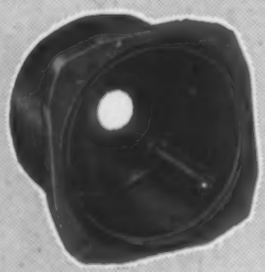
If your production calls for a paper base laminate, contact us. We are particularly equipped to manufacture this type of paper. Send us your inquiries.

Wrenn Paper Co.

MIDDLETOWN, OHIO

Before you MOLD . . .
meet INSULATION

(Custom Molders of Plastic for Industry)



Insulation . . . geared for high production of small or large size moldings . . . equipped for engineering analysis and profitable comments and suggestions to provide highest production at lowest cost.

INSULATION MANUFACTURING CO., INC.

Custom Molders of Plastics for Industry

13 New York Avenue • Brooklyn 16, N. Y.

You can always tell THERMEX high frequency heating apparatus for plastics by the sliding drawer heating compartment. The ease, simplicity, dependability embodied by this feature is the result of experience. THERMEX pioneered in high frequency heating apparatus for plastics. THERMEX performance claims are based on successful installations. For the practical facts about what high frequency heating can do to make plastics molding more profitable, write to The Girdler Corporation, Thermex Division, Louisville 1 Kentucky.

District offices: 150 Broadway, New York City 7
600 South Michigan Avenue, Chicago 5

Thermex RED HEADS

THERMEX and RED HEAD *T. M. Reg. U. S. Pat. Off.*

For your Information

NEWS ABOUT PLASTICS FROM

PRIZE WINNERS USE

Monsanto's family of twelve basic plastics wins a commanding position in the Seventh Annual Modern Plastics Competition. All these important prizes show how Monsanto plastics advanced during and since the war, in physical properties, applications, volume and in ease and economy of molding and fabrication.

The prizes reflect the skill of molders and fabricators in design and production. And they are real samples of the *results you'll get* by putting your problems in plastics in Monsanto's hands. Just send the coupon for information and help on any problem from research through production and merchandising.

A prize winner for fast, accurate production! Formerly this harmonica was assembled from 80 parts, requiring 150 operations. Today, with Lustron, a better product is produced with only 5 parts, assembled in just 15 seconds, with 7 operations. Moreover, this Monsanto polystyrene molds speedily in the fastest mass production techniques.

Building blocks of Lustron . . . a prize in plastics for imaginative designers and architects planning interiors. Ideal for partitions in recreation rooms, waiting rooms, offices and hallways, the sturdy injection molded blocks have Lustron's dimensional stability, light weight and light transmission. Interlocking ribs make assembly quick and easy.

Durable Nitron, Monsanto's cellulose nitrate sheeting make exceptionally tough and exceptionally handsome piano keys. Resilient but not elastic, Nitron has good mechanical properties, is easily fabricated in many colors into a variety of other "prize winning" products. Monsanto plastics in sheet form are available for practically every requirement.

Light weight and compactness with Monsanto's Lustron are the keys to prize-winning Paravox hearing aids. This successful use of an electrical circuit shows how Lustron's excellent electrical properties are maintained through a wide range of temperatures, humidities and frequencies.

ELECTRICAL APPLIANCES
Roto-Beam Air Circulator blades and base molded by Hauser Products Inc., Chicago, Ill., for Roto-Beam, Chicago, Ill.

Monsanto's tough, thermosetting Resinox is a natural prize winner among electrical appliances. The Roto-Beam Air Circulator demonstrates how Resinox has become *standard* for products demanding permanent strength, exceptional electrical insulating qualities, outstanding impact resistance.

INDUSTRIAL AND MACHINERY
Molded by the Prolon Division of the Pro-phy-lac-tic Brush Co., Florence, Mass., for The Electric Storage Battery Co., Philadelphia, Pa.
Exide

Lustron offers excellent resistance to common acids, alkalies, salts and alcohols, as demonstrated in this prize-winning battery case. Lustron also offers low moisture absorption, dimensional stability plus high impact and tensile strength. Monsanto Lustron is easily molded, at low cost in varied designs.

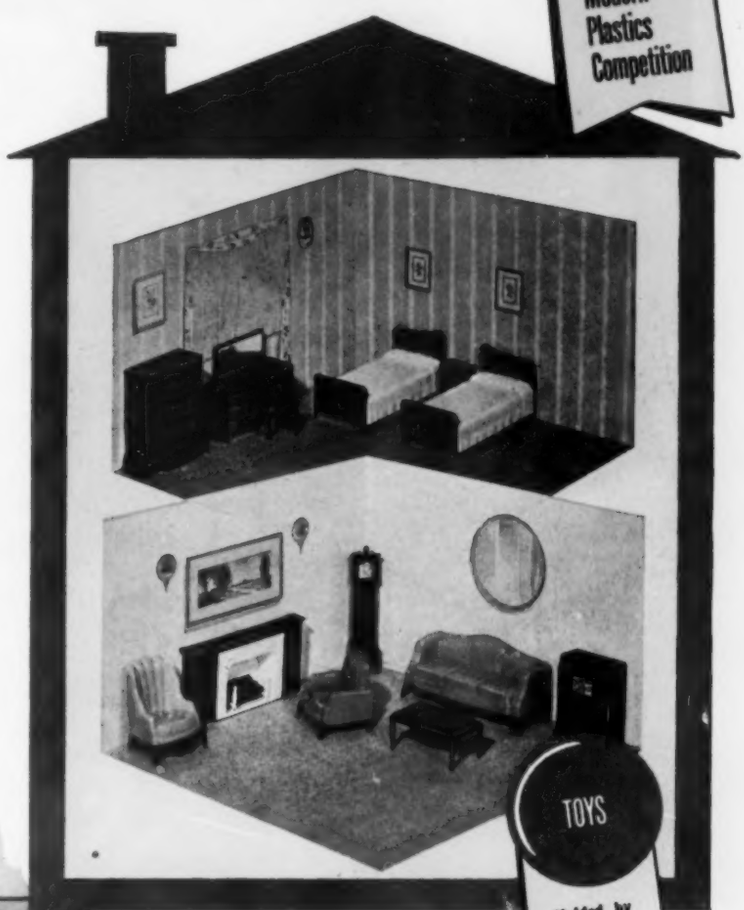
MONSANTO PLASTICS

7th Modern Plastics Competition

All through the house prize toys of LUSTRON

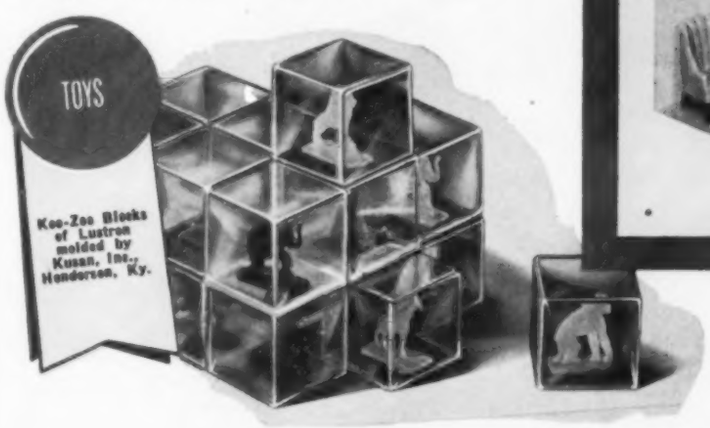
Color and brilliancy . . .
Easy mass production at low cost . . .
Excellent resistance to wear and tear . . .
Adaptability to design . . .

These are the factors that make Lustron, Monsanto's polystyrene, an outstanding prize winner in the large and important toy and household appliance fields. Toy makers . . . and other manufacturers . . . find that Lustron is well suited for high speed production. Lightest in weight among all rigid plastics, Lustron is also the least expensive of thermoplastics to use! (The Protektosite winners include bathroom, outdoor, nursery, dining room and kitchen sets plus the bedroom and living room furniture shown.) → →



TOYS

Molded by Columbia Protektosite, Inc., Carlstadt, N. J. for the Plastic Art Toy Corporation of America, East Rutherford, N. J.



TOYS

Koo-Zoo Blocks of Lustron molded by Kusan, Inc., Henderson, Ky.

These prize winners are your keys to better, more economical production with one of Monsanto's growing family of twelve basic plastics. Monsanto's technical council is ready to help you with material selection, product design, production problems and merchandising. Just send the coupon to get the help you need, or the 20-page illustrated catalog telling "What Monsanto Plastics Can Do For You."

Lustron, Resinox, Nitron: Reg. U. S. Pat. Off.

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SERVING INDUSTRY...WHICH SERVES MANKIND

MONSANTO CHEMICAL COMPANY, PLASTICS DIVISION
Dept. MPLP9, Springfield 2, Mass.

☐ *An attached letter describes my plastic requirements.*
☐ *Please send me the free catalog on Monsanto Plastics.*

Name _____ Title _____

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TO HANDLE PLASTICS EFFICIENTLY

SHAW

SHAW INSULATOR COMPANY

MOLDERS QUALITY MARK ON MOLDED PLASTICS SINCE 1892

160 COIT STREET IRVINGTON 11, N. J.

Leading companies come to Shaw, just as consumers go for name-brand products like the General Mills' Tru-Heat Iron. In each case, the customer expects and gets topflight performance.

Here's a handle molded by Shaw to meet the General Mills requirements of smart appearance and maximum utility. Deceptively simple in form, it is a complicated piece to mold. Those side cores ordinarily increase molding costs. But Shaw is able to control the molding of these side cores *automatically* and produce the handles on a very fast cycle. General Mills gains ease of assembly resulting from precision control and saves on cost-per-piece, too.

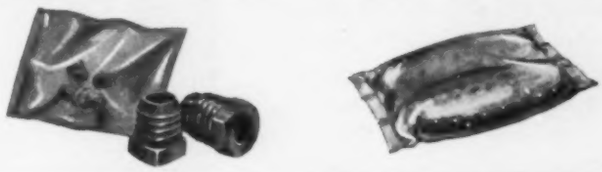
"Accent on Efficiency" is the title of a folder describing Shaw's laboratory facilities. Please write for it.

IMPORTANT FACTS TO KEEP HANDY

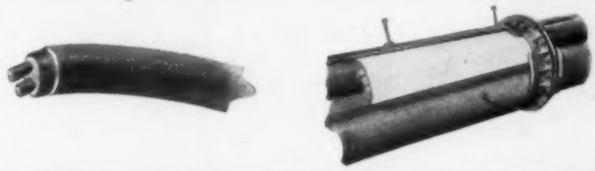
PLAX POLYETHYLENE SHEET AND FILM

STRETCHES WITHOUT TEARING
Even at Sub-zero Temperatures
(Elongation, 77°F, 300-500%)

WATER-VAPOR RESISTANT
(Water absorption, 24 hrs., 0.01%)



HIGH DIELECTRIC STRENGTH
(Dielectric constant of 2.3 at frequencies of 10^3 and 10^4)



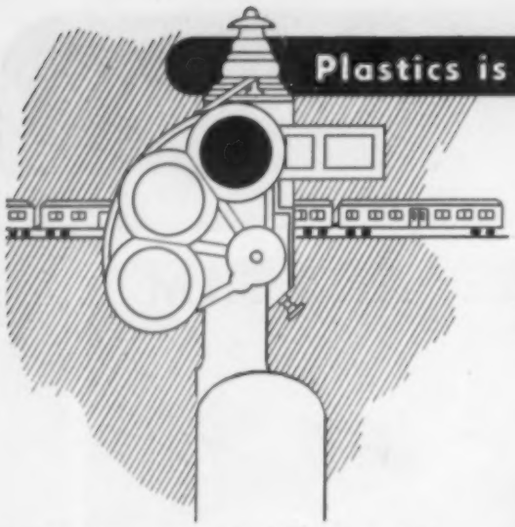
CHEMICALLY-RESISTANT
(Not affected by acids, alcohols)

CHEMICALLY-INERT
(Non-toxic, odorless and tasteless)

ABOVE ARE A FEW of the many desirable characteristics that make for apparently limitless application possibilities. The possible uses of Plax polyethylene sheet and film have been barely explored. As a leading supplier of plastics in many forms, Plax can be of real help in exploring the application of this and other materials to your product. Please write Plax for complete details.

PLAX
FOR PLASTIC SHEET, ROD & TUBES
NOT SUBSTITUTES ··· IMPROVEMENTS

P. O. BOX 1019 ★ HARTFORD 1, CONNECTICUT
In Canada — Canadian Industries, Ltd., Montreal

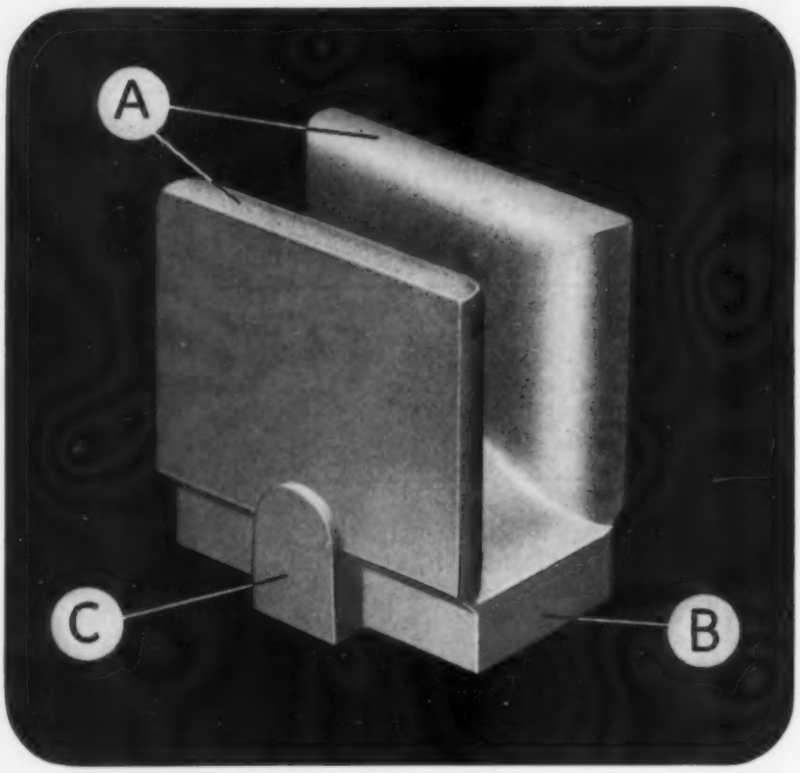


Plastics is Entrusted with Public Safety

High Tension Arc

CONFINED BY COLD MOLDED BARRIER

The vicious, biting arc of 600 volts at 700 amperes "blowing" a fuse is kept safely in bounds within this Horne Fuse Box by an Aico cold molded barrier. As part of the planned safety for passengers, personnel and property of the New York Subways, this humble, homely piece takes its place along with the more obvious automatic block system and warning signals. Versatile plastics are playing many important roles . . . in widely diversified industries . . . that are not apparent on the surface.



Only the plastics specialist can say how plastics will improve your product . . . know *which* plastic is most suitable for the job. For 32 years Aico has molded all plastic materials . . . using all molding methods. We are experienced specialists, ready and able to help you solve plastics design and production problems with unbiased recommendations.

Aico #5 is used for this arc barrier. It is a cold molded compound created to meet the demand for a plastic with excellent dielectric and refractory properties. This economical, inorganic material has a rapid molding cycle, permitting high production rates with a single cavity mold. In use, the ribbon fuse lies at the arched bottom of the space between the sidewalls (A) Narrowed base (B) and lugs (C) fit recesses in the fuse box to maintain perfect position of the barrier.

AICO
PRECISION MOLDING
for over 32 years

There are 28 actual Aico plastics applications pictured and described in the Aico Portfolio. Write for your copy today.

AMERICAN INSULATOR CORPORATION
New Freedom, Pennsylvania

MANY THINGS ARE BETTER BECAUSE OF PLASTICS

MODERN PLASTICS

VOLUME 26 SEPTEMBER 1948 NUMBER 1

With a great sense of pride and privilege MODERN PLASTICS Magazine presents this trophy to the winners of the 1948 MODERN PLASTICS Competition

Highlights of the Competition

ENTRIES in the Seventh MODERN PLASTICS Competition represented the whole range of plastics applications which have reached the market since August 31, 1945. On the surface, this meant that the scope of the competition was post-war in nature. But it proved to be much more than that. In many respects the competition became a mile-post in a new era in the plastics industry. To view this progress in correct perspective, it is needful to review some of the background.

Twelve years ago, the First MODERN PLASTICS Competition was created as a means of giving recognition to those companies in many industries who were pioneering in the use of plastics as new materials which would make possible better, more attractive, and more efficient products.

In those pre-war days, almost all plastics were either injection or compression molded, or fabricated from either cast or laminated sheet and rod stock. Many resins now being produced on a large scale were then but laboratory specimens. Extrusion of plastics was still in the experimental stage. The use of plastics resins in industrial processes was limited, but already the phenolics and ureas on the thermosetting side and chiefly the cellulosics on the thermoplastic side were finding new and important applications in the electrical industry, in appliances, in communications equipment, in automobiles, in radios, and in industrial equipment.

The First MODERN PLASTICS Competition was naturally small in size and scope. Each succeeding year saw new resins, new formulations, new equipment, and new methods added to the list of worthwhile applications. The annual Competition grew to be the most important event of the year in the world of plastics, where the awards were coveted and valued above any other achievement.

By 1941, the year of the Sixth MODERN PLASTICS Competition, the scope of application of plastics had increased many times, and a study of the entries and the award winners provided, to quote from the editors in that year, "the basis for evaluating the contribution of plastics to the American way of living." In that year, industry in the United States was already geared for war, and an important Defense classification in the competition showed the promise which was to be fulfilled in applications of plastics to the equipment and armament of the greatest fighting force the world had ever seen.

The Sixth Competition was the last until this year. Plastics had gone to war and were put to uses which did not permit of competition publicity. The plastics industry, under forced-draft expansion, with a shortage of manpower, and under stringent material allocations, was concentrating, not upon competition for commercial purposes, but upon the high-speed job of turning out quality products and components for the armed forces. In MODERN PLASTICS,

every page and every unit of the time of its limited staff was devoted to furthering the war and important civilian uses of plastics.

Seven years is a long time, and many of our present readers have no memory of even the Sixth MODERN PLASTICS Competition. But, with the reopening of post-war competition, and having in mind the value to all industry of the pre-war MODERN PLASTICS Competitions, men who have shared and indeed implemented much of the plastics industry's growth prevailed upon the publisher to stage the Seventh MODERN PLASTICS Competition this year.

If ever the drama of technical and economic progress in an industry was added up, it was in this 1948 Competition.

Wrapped up in over 1300 entries comprising some 7000 items were all the elements of technical progress made by plastics during the war, all the new resins and formulations developed to resist strains, temperatures, and chemical attack in a global battle, plus all the art and ingenuity of production design which since August 1945 has rendered obsolete so many pre-war products.

There was reflected also the trend in the plastics industry toward the production and merchandising of complete proprietary plastics products. For the first time, an award was given for Merchandising.

Item after item in the proprietary fields, particularly in housewares, was submitted with accompanying display material, brochures, and informative labelling which specified the plastic used and its suitability to the application. Promotional material for many items featured material trade names in order to tie in with national promotion for plastics products by material makers.

A consensus of the judges was that informative labeling in plastics has still to be coordinated if an effective public and trade educational job is to be done.

The award winners, illustrated and described in the following pages, speak for themselves. All are products of outstanding merit, although in some instances quality and design of many entries was so uniformly excellent that a choice was difficult to make.

Significant trends in plastics applications were fairly obvious throughout. In certain instances, plastics have now become standard materials. Examples are flashlight cases, radio cabinets, toilet seats, shower curtains, rain apparel, signs and displays, furniture coverings, and electrical appliances.

In a number of cases, plastics have come to dominate fields which formerly used other materials. The entries in the Toys classification are, in range and variety, perhaps the best example of this. With ethyl cellulose, cellulose acetate butyrate, and the propionate formulations for use in toys where impact resistance is important, with polystyrene and acetate available for more general use in toys, with multi-cavity production on heavy-shot injection machines becoming the rule rather than the exception, it's little wonder that conservative estimates grant plastics fully 40 percent of today's toy market.

Plastics long ago took over much of the household gadget market, but a phenomenon of the present production in this field is the general durability and excellence of design of items entered in this Competition. If the fear of "misapplication" has hung over the heads of men in the plastics industry, certainly the very fine design, careful selection of material, adequate engineering of molds, and care in molding and finishing of today's plastics housewares will remove much of that worry.

It is interesting to note that the winning award in Housewares went to a line of products made from a resin—polyethylene—which did not exist in commercial quantities until 1945.

The extent to which the vinyls have contributed to the present American standard of living was well evidenced. Vinyl producers have not been content with direct product development but have extended the service of their resins into the improvement of products for general application. In Hardware, a vinyl garden hose won the award. In the field of Building Materials, two makers of vinyl flooring shared an award. In Furniture and Interior Decoration, a vinyl material was chosen tops. The vinyl hose replaced rubber; the vinyl flooring competes with rubber tile, linoleum, and asphalt; the vinyl furniture and wall covering material is an improvement upon leather, imitation leather, paper, and fabric.

Indeed, those who decried premature publicity on "The Plastic House of Tomorrow" some three years ago could not fail to be impressed by the applications of plastics to architecture shown in this

Judges and ex-officio observers segregate items which were entered under the Scientific classification

competition. Polystyrene wall tile, an award winning polystyrene "glass" brick, the above-mentioned floorings, both high and low pressure decorative laminates, wall-surfacing acoustic materials made with fabric and both vinyl and polyester resins, a vinyl-covered folding accordion door, shielding material for illumination including fluorescent fixtures, metal pipe coated with cellulose acetate butyrate—the list is long and remarkably comprehensive.

The field of low pressure plastics was rather poorly represented in this competition. The outstanding application was the glass mat-polyester boat which won an award in the Sporting Goods classification. Whether techniques have not yet been sufficiently standardized to permit more uses for these materials, whether costs are out of line, or whether designers have not yet become well enough acquainted with low pressure plastics, it is a fact that not many items entered were made by low pressure.

The acrylics, drawn acetate, and rigid vinyl generally dominated the Signs and Displays classification. From the entries observed, it is apparent that techniques of fabricating acrylics and accessory equipment for this use have become standardized in small sign and display manufacture. The unusual entries were all big, and some of the markets indicated by these entries are tremendous. The new large size cast sheets of acrylic will make possible an extension of this application and should show promise in the architectural field as well.

In Packaging, while cast material, both phenolic and acrylic, presented some interesting examples, by far the most progress was indicated in the formed sheet material and in the films. Clearly shown was the extent to which polyethylene, the acetates, the specially plasticized vinyls, and saran film have developed in use for packaging products previously unpackaged or put up in paper or regenerated cellulose. And the application of sheet acetate, butyrate, ethyl cellulose, vinyl, and polystyrene to form display packages was worthy of note. From the number of folding and set-up boxes shown in these materials, much wider markets for them may be prophesied.

Industrial applications, as in the past, continued to feature the thermosetting materials, but there has been a strong trend toward specialty use of everything from polystyrene to polytetrafluorethylene and the silicones. Higher speeds of machines, the necessity for lower maintenance costs, and extreme specialization of machine design have brought new importance to the laminates and molded phenolics.

Entries in Communications, embracing television, electronic devices, etc., offered many interesting developments. Award winner was a hearing aid constructed with the use of a complex plastic chassis holding the component parts and two printed circuits. In this as in other fields where portability is an element, light weight and compactness keyed most recent progress.

The general use of large size compression moldings, particularly of urea formaldehyde, was indicated in the Store and Business Equipment classification. Housings of a size that would have been impossible to produce as late as 1945 are now becoming standard in practice.

As in the Electrical Appliances field, so in several others the use of plastics for stability and for ease of assembly of complicated devices was frequently exemplified in the competition. The two award winning items in the Musical Instruments classification are notable examples of this trend. In some cases, it's a matter of simplifying design and lessening the number of parts through the use of plastics; in other cases, it's a matter of fast, accurate production without resorting to hand fabrication.

Mention must also be made of the Scientific, Medical Science, and the Photographic Equipment classification entries. In Medical Science the use of light weight, dense plastics for prosthetic and orthopedic use has come to a high point of perfection due to

Trophies to award winners in the Seventh MODERN PLASTICS Competition and Certificates of Participation to those who contributed services, equipment, or materials to the winning entries will be presented at a luncheon in New York City on Wednesday, September 29, 1948.

A corner of the exhibition hall where entries in the MODERN PLASTICS Competition were displayed for judging. Mrs. Gaby Schreiber, outstanding designer of London, England, participated as an ex-officio judge

THE JUDGES OF THE COMPETITION

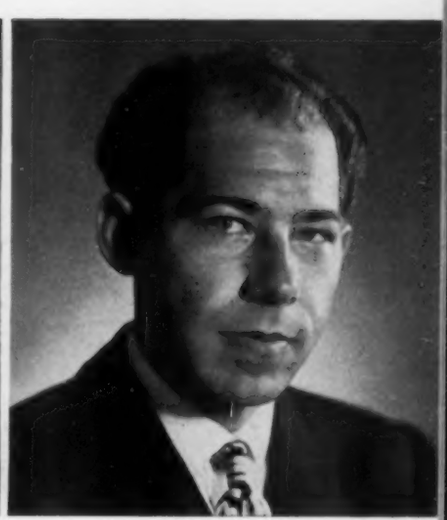
ALFRED AUERBACH
Head of Alfred Auerbach Associates, sales engineers

DON G. MITCHELL
President of Sylvania Electric Products Inc.

J. GORDON LIPPINCOTT
A senior member of Lippincott and Margulies, Inc., industrial designers

EPHRAIM FREEDMAN
Director of Macy's Bureau of Standards

LAWRENCE COWEN
President of Lionel Corp.



JEAN O. REINECKE
Of Barnes and Reinecke Inc., industrial designers

war-time development. In Scientific applications, a trend appears to be one of making pictorial and demonstration use of plastics at educational or lay levels rather than in laboratory approach. Plastics in Photographic Equipment have, of course, become standard for housings, gaskets, and other components; but plastic lenses are here and a trend toward their more general use has been established.

The impact of war-time development on the industry was great. The impact of design and engineering, material formulation, and product presentation for the post-war consumer market has been just as great. But much has yet to be done. Applications must be refined; product size must be further enlarged; product presentation, promotion, merchandising, and labeling must be strengthened. One general criticism of the entries in this competition is that most packaging left much to be desired.

The publishers wish to thank the Judges for their time and study in the selection of the award winners. They thank also the more than 1300 companies who entered plastics products in the Seventh MODERN PLASTICS Competition. It is hoped that a study by all industry of the illustrations and descriptions of the award winners in the following pages will prove an inspiration to material manufacturers, molders, fabricators, processors, users, and merchandisers of plastics.

Telephone
Telephone

To Sherron Metallic Corporation

BROAD use of plastics in the construction industry is just beginning to get under way, but the employment of melamine surfaced laminates on a large scale for such things as table and sink tops, kick plates on doors, and in various types of interior trim was initiated several years before the war. It was to be expected that such a versatile material, with its ability to withstand severe abuse, would begin branching out into other fields just as soon as the material was available and building or equipment contractors became aware of its possibilities. Its emergence in a telephone booth is symbolical of its worth as a structural material and of its possibilities in scores of as yet untried applications in the housing and industrial building field.

The Sherron Metallic Corp., Brooklyn, N. Y., builder of this booth, has long been accepted as a supplier of equipment by the telephone industry. The new Sherron booth shown on the opposite page has created great interest not only among the telephone companies and building equipment people, but among architects and engineers as well, because of the possibilities this type of construction opens up for combinations of metal and decorative plastic laminates to large size equipment units.

The walls and ceiling, both interior and exterior, of this booth are fabricated from Textolite melamine surfaced panels laminated with phenolic varnish. The inner surfaces of the booth's panels are perforated and backed by sound-absorbing acoustic material. Sounds are trapped in these thousands of tiny holes.

The metal structure is of cold rolled or stainless steel or Monel "35". Advantages of the new metal and plastic panels are resistance to abrasion and ease of maintenance. Available in several colors, the unit is particularly desirable in locations where appearance as well as durability is a prime requisite.

Materials: Textolite laminates, General Electric Co., Chemical Dept., Plastics Div., Pittsfield, Mass.; paper for laminate printed by Morart Gravure Co., Holyoke, Mass.; base paper for laminate furnished by the Hurlbut Paper Co., South Lee, Mass.; phenolic varnish, General Electric Co., Chemical Dept., Plastics Div.; melamine resin, American Cyanamid Co., New York, N. Y.

BUILDING MATERIALS

AWARD

To Columbia Protektosite Co., Inc.

INTERIOR partitions of glass blocks are becoming increasingly popular, but glass blocks are heavy and expensive. As a result there is an expanding market for transparent plastics in the form of the injection-molded polystyrene partition blocks manufactured by Columbia Protektosite Co., Inc., Carlstadt, N. J., under pending U. S. and foreign patents.

The polystyrene blocks weigh about one fifth as much as glass blocks. The consequent reduction in shipping weight—and shipping breakage—means a substantial cost saving. Installation is simple because the plastic blocks interlock so that a wall can be "built" without the use of adhesives or clamps.

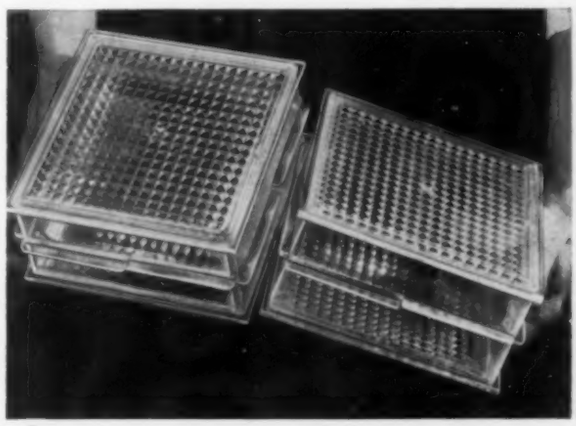
Each block consists of three separate molded parts: two covers and a center structure. The covers—the faces of the block—have facets molded into their inside surfaces so that the finished block diffuses light. The covers are cemented to the center section by the molder, but the joint is hidden.

The center part of the block has two ribs molded into each side. The ribs are set on opposite sides of the center line of the block. These two ribs mate with the ribs on the adjacent block in the wall, and hold the blocks in position. The front and back faces of the blocks fit flush against the faces of adjacent blocks, leaving no spaces or seams.

Mastic cement, or wood strips between the blocks can be used to make a more rigid and permanent wall. But temporary installations can be made with only a wooden framework for bracing.

Glass blocks are usually installed in such a manner that they carry only their own weight. A similar practice is recommended for the polystyrene blocks. It is also recommended that installations be confined to interiors for the present.

Designer: Nicholas T. Baldanza. Materials: Bakelite Corp., New York, N. Y.; Catalin Corp. of America, New York, N. Y.; Dow Chemical Co., Midland, Mich.; Monsanto Chemical Co., Springfield, Mass. Molds: Plastic Mold, Tool & Die Corp., East Rutherford, N. J. Machinery: Reed-Prentice Corp., Worcester, Mass.



BUILDING MATERIALS

AWARD

To Sloane-Blabon Corporation

KOROSEAL flooring is made by the Sloane-Blabon Corp., New York, N. Y., in 18 veined marble and 18 chipped marble effects with harmonizing extruded cove base in solid colors. It is ⅛ in. thick and will be available in 4 in., 6 in., 9 in., 11⅞ in., 17⅞ in., and 36-in. squares. At present it is being marketed in 9-in. square tiles and 36-in. square slabs. The cove base may be had in two styles, one to set on top of the tile and one to butt to the tile, in 4 and 6-in. heights.

Wear resistance, chemical resistance, density, and clearness of color make polyvinyl chloride an ideal choice for flooring. The beauty of vinyl floors is lasting and can be maintained with a minimum of upkeep cost and labor. Oils, greases, alkalies, and most acids do not affect it. Its resiliency and ability to return from indentation are proved (see MODERN PLASTICS, March, 1948, pages 75-82) and on a standard abrasion tester it has been found to be superior to battleship linoleum, rubber tile, and asphalt tile.

Koroseal flooring can be installed on wood, concrete, steel, magnesite, or practically any other type of clean, smooth, solid, and dry underflooring that will permit the bonding of the adhesive to it. On wood underfloors a saturated felt underlayment is required. Uneven floors should be made smooth and level with all cracks and indentations filled with a suitable floor leveler or filler. Two adhesives are provided by the company, one for use with the tile and one for the extruded cove base.

Materials: B. F. Goodrich Chemical Co., Cleveland, Ohio. Machinery: multi-platen press, Baldwin-Southwark Div., The Baldwin Locomotive Works, Eddystone, Pa.; calendars, Farrel-Birmingham Co., Inc., Ansonia, Conn.; granulators, Cumberland Engineering Co., Providence, R. I.; extruder, Sloane-Blabon Corp.

BUILDING MATERIALS

AWARD

To The U. S. Stoneware Co.

ONE of the concerns which first introduced vinyl in the flooring field was The U. S. Stoneware Company, Akron, Ohio. Called Plastile, this product is revolutionary in many respects. It consists of a 3/32-inch top layer of carefully formulated vinyl plastic laminated inseparably to a 3/32-inch layer of resin-impregnated cork. The two plies are placed under 20,000 pound pressure in a multi-platen press which has been heated to a high temperature. Since both the vinyl compound and the synthetic resins which are mixed with the cork are natural bonding materials, no adhesives are used in the lamination.

Laminated sheets 3/16-inch thick come from the press 35 inches square, and are marketed in cut sheets 34 inches square, or in tiling 17, 11 1/3, and 8 1/2 inches square. The cutting is done with specially designed equipment.

Chief objective of plastic floor covering makers is to obtain a stress-free product. The method used in this instance—lamination which amounts to molding of the tile—minimizes any tendency toward expansion or contraction.

Abrasion resistance of the vinyl layer is superior to that of rubber according to standard accelerated tests. Specimens have been immersed in water for many months with no ill effects. The wearing surface to all practical purposes is resistant to alkali, stains, oils, acids, grease, or alcohol.

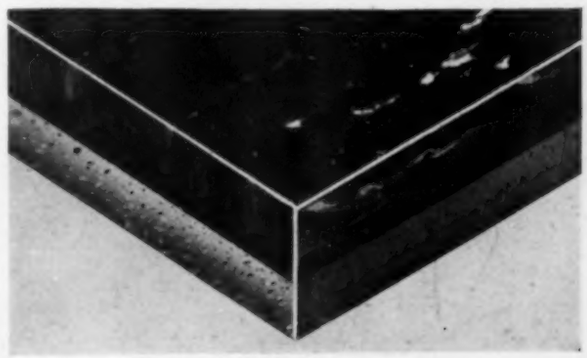
The resilient plastic impregnated cork base cushions shock, absorbs noise, and is extremely pleasant to walk on.

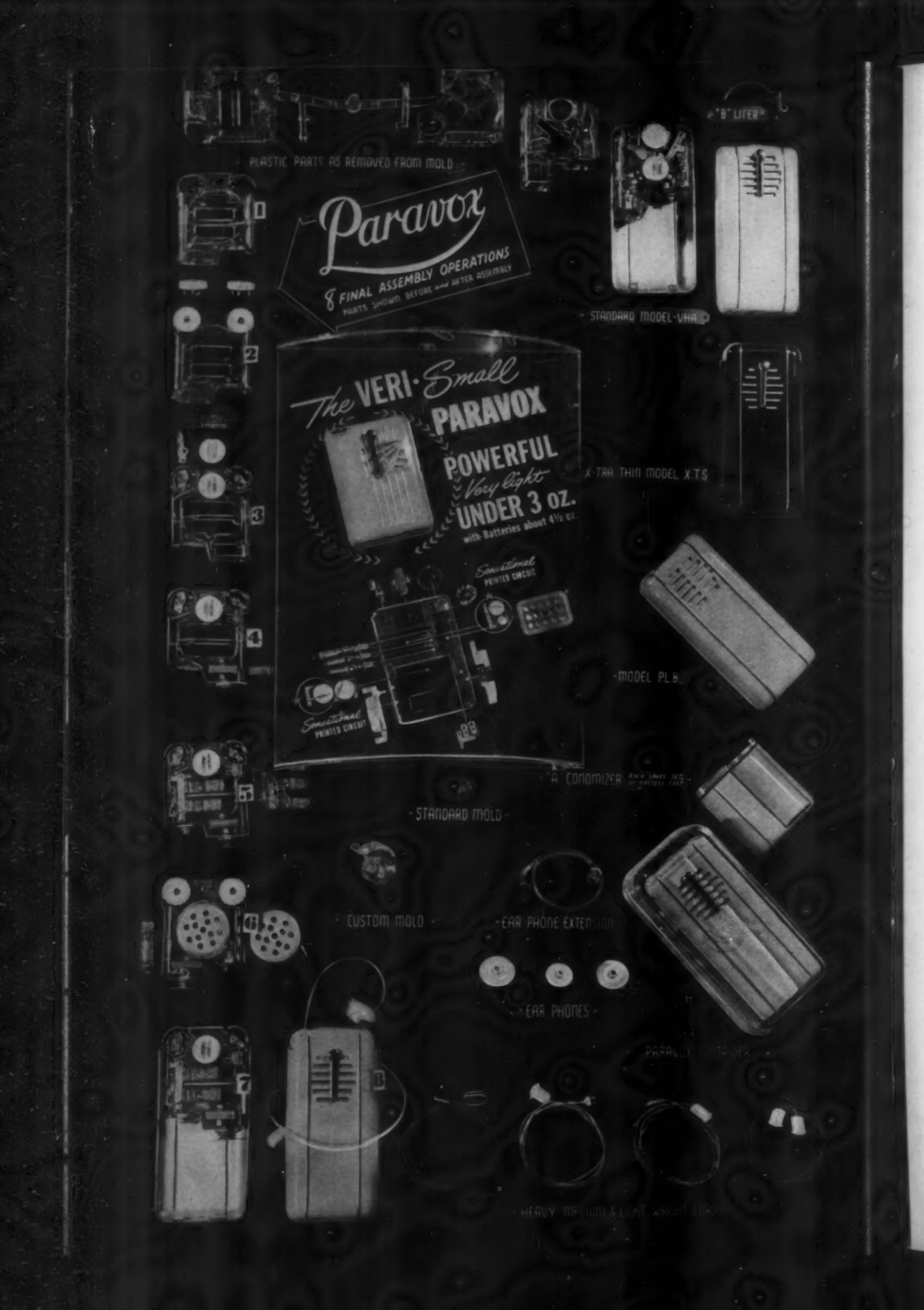
Plastile should be installed by professional flooring men, using standard tools. The material is quite easy to install, although proper floor preparation is essential. It can be successfully laid over wood, concrete, and steel.

The color range of Plastile is extensive, including whites, clean yellows, and light grays, as well as reds, tans, browns, blues, greens, and blacks—in solid or marbled patterns.

Materials: The U. S. Stoneware Co.'s Tygon plastic and Duralon resins. Machinery: Special equipment designed by The Super Machine Co., Ravenna, Ohio, Div. of The U. S. Stoneware Co.

Cross-section of laminated vinyl flooring




PLASTIC PARTS AS REMOVED FROM MOLD
Paravox
8 FINAL ASSEMBLY OPERATIONS
PARTS SHOWN BEFORE and AFTER ASSEMBLY
"B" LITER
STANDARD MODEL-VHA
The VERI-Small PARAVOX
POWERFUL
Very light
UNDER 3 oz.
with Batteries about 4½ oz.
Sensitional PRINTED CIRCUIT
X-TRA THIN MODEL XTS
MODEL PLB
ECONOMIZER
STANDARD MOLD
CUSTOM MOLD
EAR PHONE EXTENSION
EAR PHONES
PARAVOX CONTAINER
HEAVY DUTY CORD & LIGHT WEIGHT CORD

COMMUNICATIONS

AWARD

To Paravox, Inc.

THE conventional hearing aid chassis consists of an assembly of parts on a flat nonconducting sheet. As a result, the vital parts are vulnerable to blows, pressure, and shock—especially when the chassis is out of the hearing aid case. To overcome this disadvantage, Paravox, Inc., Cleveland, Ohio, has designed an internal-type plastic chassis shell —the heart of the instrument—which is molded of transparent cellulose acetate butyrate. This chassis is an intricate arrangement of slots, bosses, recesses, holes, and undercuts into which the working components fit precisely. Thus the components are held in their proper places, electrically insulated from each other, and protected from external pressure. Tests show that the chassis shell will withstand over 1400 pounds pressure without the protection of the case of the hearing aid—and over 2400 pounds when inside the hearing aid case.

Because of the design of the internal-type chassis, the hearing aid can be dismantled or assembled without tools. Thus the company is able to promise customers one-minute repair service (the time required to replace the entire chassis).

In addition to the chassis shell, the Paravox hearing aid has 21 other plastic parts, including an acrylic ear mold, and vinyl tubing connecting a "hide-away" with the reproducer. Among the components which fit into the chassis shell are two tiny printed circuits.

Materials: acrylic, E. I. du Pont de Nemours & Co., Inc., Arlington, N.J.; cellulose acetate butyrate, Tennessee Eastman Corp., Kingsport, Tenn.; phenolic, Bakelite Corp., New York, N.Y.; polystyrene, Bakelite Corp., Dow Chemical Co., Midland, Mich., Monsanto Chemical Co., Springfield, Mass.; vinyl, Bakelite Corp. Machinery: Lester-Phoenix, Inc., Cleveland, Ohio. Molds and molding: The Vlchek Tool Co., Cleveland, Ohio.

DISPLAYS

AWARD

To General Electric Company

IN a highly competitive market, such as the washing machine field, forceful sales aids are essential to merchandising success. When such sales aids permit prospects to see the inner workings of a mechanism ordinarily hidden from view, they become even more effective. This was the reasoning behind the design of a demonstration washing machine with a transparent acrylic tub, used by the General Electric Co., Bridgeport, Conn.

In engineering the tub of the transparent demonstrator, it was necessary to select a material which would provide complete clarity in order that the working parts could be seen; which would hold water varying in temperature up to 180° F.; and which, with a moving metal agitator attached, would be strong enough to stand up as long as the model was in use. The answer to these three problems lay in the use of acrylic, which is optically clear, resistant to the temperatures involved, and shatterproof.

In the manufacture of the tub, it was desirable to eliminate as many joints as possible. This was accomplished by making the tub in three pieces: the removable top, the bottom, and the center cylinder. A deep forming operation was performed on the cylinder and on the matching bottom. A soak joint was then used to cement these two parts together. This joint has to be as strong as the material itself in order to be able to withstand water pressure, temperature changes, and the stresses set up by the agitator.

The transparent plastic tub conforms to the same outside dimensions as the regular metal tub and can be used with the standard washing machine mechanism. The original production order for these demonstrators was 200 units; within a year, 7500 were purchased—ample proof of their sales effectiveness.

Material: Rohm & Haas Co., Philadelphia, Pa.; E. I. du Pont de Nemours & Co., Inc., Arlington, N. J. Designer and fabricator: Steiner Mfg. Co., Long Island City, N. Y.

Heated acrylic sheet for cylinder of washing machine model has been clamped in position for drawing operation

HAMILTON
AMERICA'S FINE WATCH

DISPLAYS

AWARD

To Hamilton Watch Company

THE embedment of medals, animal tissues, and botanical specimens in acrylic for the purpose of permanent preservation has been performed on a small scale for 10 or 12 years but is still an art rather than a clearly defined technical process. When the field is enlarged for the purpose of displaying commercial items as is demonstrated it can be by this three-part Hamilton Watch show piece, a future development with imposing possibilties is indicated.

The display, made for Hamilton Watch Co., Lancaster, Pa., by Vernon-Benshoff Co., Pittsburgh, Pa., is intended to integrate the watches, the advertising slogan, and the decorative motif. The set shown has a Spring flower arrangement and is one of a series in various designs which suggest the seasons of the year. The units are intended for circulation among the manufacturer's largest distributors and the display is made in three sections to increase its adaptability to available space.

As originally made, the castings with the watches had separate feet. The present wedge shape eliminates the necessity for feet and simplifies transportation and erection of the exhibit.

The material used for the castings is described as a pre-polymer acrylic. Practically anything suitable in shape may be used as a mold. Major problems in connection with casting are: a) assuring that the item to be embedded is completely clean, dry, and free of oil; b) assuring that no air pockets shall develop either around the items to be embedded or out in the clear acrylic; c) treating colored items so that there can be no bleeding of color into the casting material.

The finished castings are engraved on the back surface, and color is rubbed into the lines for identification and signature. Size of casting is practically unlimited. The producer has made pieces weighing as much as 50 pounds, clearly showing that this process of producing luxurious, jewel-like displays need not be confined to small objects only but can be expanded almost indefinitely.

Designer: Ida M. Harman. Material: methyl methacrylate, Rohm & Haas Co., Philadelphia, Pa. Casting material and casting by Vernon-Benshoff Co.

ELECTRICAL APPLIANCES

AWARD

To Roto-Beam

A MANUFACTURER of an electric appliance is really making progress when he can change the design of a major part so as to: 1) cut its weight in half; 2) cut its cost of production by more than half; 3) eliminate noise and vibration; and 4) get the same performance with a lower horsepower motor. The story of the Roto-Beam air circulator is the story of how those four things were done by switching from metal to plastics.

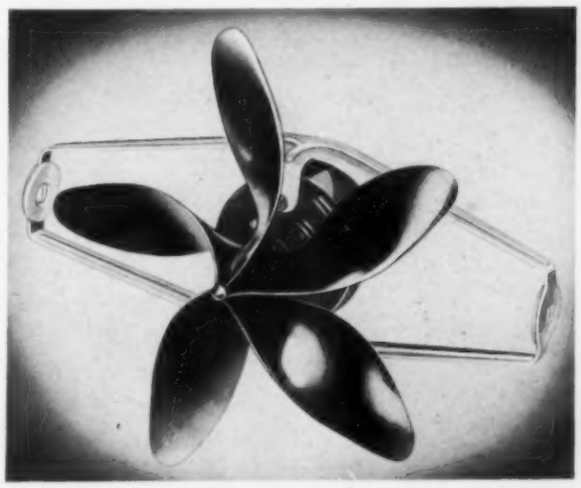
The air circulator manufactured by Roto-Beam, Chicago, Ill., originally had a propeller made of aluminum cast in a permanent mold. This method of production proved costly and inefficient, because close tolerances could not be maintained and each blade had to be balanced, polished, and plated individually.

Because of these disadvantages, Roto-Beam switched to a five-bladed propeller molded of Durez high impact phenolic. A mold which would maintain close tolerances had to be made because even slight imperfections will cause excessive vibration in a propeller rotating at high speed.

The plastic propeller is so well balanced that it needs no finishing operations. It weighs only half as much as the aluminum propeller, and its cost of production is less than half of that of the aluminum. Because the plastic propeller is lighter, it uses a smaller motor (1/10 horsepower). The propeller is also silent in operation, easy to clean, non-magnetic, non-corrosive, immune to moisture, and practically unbreakable.

The motor cover housing for the Roto-Beam and the base of the table model are molded of the same high-impact Durez material as the propeller.

Designer: Max Weber, Roto-Beam, Chicago, Ill. Material: Durez Plastics & Chemicals, Inc., North Tonawanda, N. Y.; Monsanto Chemical Co., Springfield, Mass.; Bakelite Corp., New York, N. Y. Molds: Paramount Die Mold Co., Chicago. Machinery: molding press, Stewart Bowling Co., Cleveland, Ohio; preformer, Illinois Tool Works, Chicago. Molder: Hauser Products Co., Chicago.



To Deco Plastics, Inc.

THREE years were spent in the development of materials and equipment for the manufacture of a product which would meet the most rigid requirements for upholstery and wall covering materials. The result, known as Kalistron, possesses the three outstanding properties specified by architects, designers, decorators, and contractors for material of this type. First, Kalistron has high abrasion, mar, scuff, cracking, and stain resistance. Second, it has a "protected" three-dimensional, or depth of color appearance. And third, it is prepared with a backing which makes possible simple, rapid, and permanent adhesion to either non-porous or porous surfaces, such as wood, plaster, or metal.

In manufacturing Kalistron, clear vinyl sheeting is first embossed in the desired pattern. One side of the sheet is then coated with specially prepared vinyl paints and a suede-like backing is applied, these two operations occurring simultaneously. The sheet is then passed through controlled-temperature ovens where fusion of color and backing into the sheeting take place.

This technique permits Deco Plastics, Inc., New York, N. Y., to manufacture Kalistron in any color and in any quantity. The backing may be eliminated for such applications as upholstery, where adhesion to a surface is not a requirement. Thus it becomes possible to meet the most exacting requirements of a large or small potential user of plastic sheeting, without compelling the purchase of one of a standard color line, without being compelled to manufacture large size minimum batches, and without requiring a user to modify his operation or installation procedure.

Kalistron is becoming a standard in many fields. In upholstery it is replacing other products. As a wall covering, Kalistron is exceeding expectations. Hotels, hospitals, restaurants, department stores, offices, and rooms in the home are being served by Kalistron. Table tops, desk tops, and store counters and fronts are being surfaced in Kalistron. When bonded to metal, the sheet may first be surfaced with Kalistron and then formed into shape without affecting either the Kalistron or the quality of the bond.

Material: Vinyl sheet, Bakelite Corp., New York, N. Y.; Kalistron developed through the joint effort of Blanchard Bros. & Lane, Newark, N. J., and United States Plywood Corp., New York, N. Y.

HARDWARE

AWARD

To Industrial Synthetics Corp.

WHEN a plastic is being considered as the material from which to produce an article already being made from a different material completely familiar to the public, it must offer advantages superior to the customer-accepted material it is to replace.

Industrial Synthetics Corp., Garwood, N. J., had this in mind when it designed Supplex garden hose. The company was aiming at a hose which could be left outside the year around, would be crackproof, non-rotting, and longer wearing than conventional hoses, and would possess resistance to sunlight, oil, grease, and kinking. Since the hose would be specifically made for home use, it had to be light enough for a woman or child to handle without effort. Superior abrasion resistance was also another objective.

Elastron, a plasticized vinyl polymer compound, made it possible to obtain these advantages, and to produce a hose in which the smooth surfaces of the inner walls combined with superior weight-strength ratio to permit reductions in bore and in wall thickness.

Some 90 percent of all garden hose connections use ½-inch pipe while the majority of rubber garden hoses have a ⅝-inch bore. This difference is necessary because the bores of conventional hoses are reduced after use by mildew, rot, swelling, and oxidation. Since Elastron is unaffected by these troubles, the smooth inner surface retains its size even after prolonged use, and a ½-inch bore is sufficient.

The reduction in dimensions resulted in a 2/3 saving in weight. The change in ratio between the inner and outer diameters gives the hose better coilability and kink resistance. It also gives good bursting strength—380 p.s.i. at 77° F.

Packaging consists of clamping the coiled hose around a circular printed cardboard disk which details the main selling points. A guarantee to be registered with the manufacturer and a folder pointing out the plastic's advantages accompany each hose.

Compound: Elastron, Industrial Synthetics Corp.; resin: Geon, B. F. Goodrich Chemical Co., Cleveland, Ohio. Machinery: Automatic proportioner and extrusion equipment, Industrial Synthetics Corp.; 84-in. plastics mill, H. Thropp & Sons, Trenton, N. J.

PHOTOGRAPHY BY LOUIS HOEBERMAN AT THE NEW YORK HEART ASSOCIATION DREAM HOUSE

Norge

HOUSEWARES

AWARD

To Tupper Corporation

WHEN Earl Tupper set out to design a new line of tableware and kitchenware, he departed from the all too prevalent practice of picking a plastic material which looked as nearly as possible like the materials ordinarily used for the application.

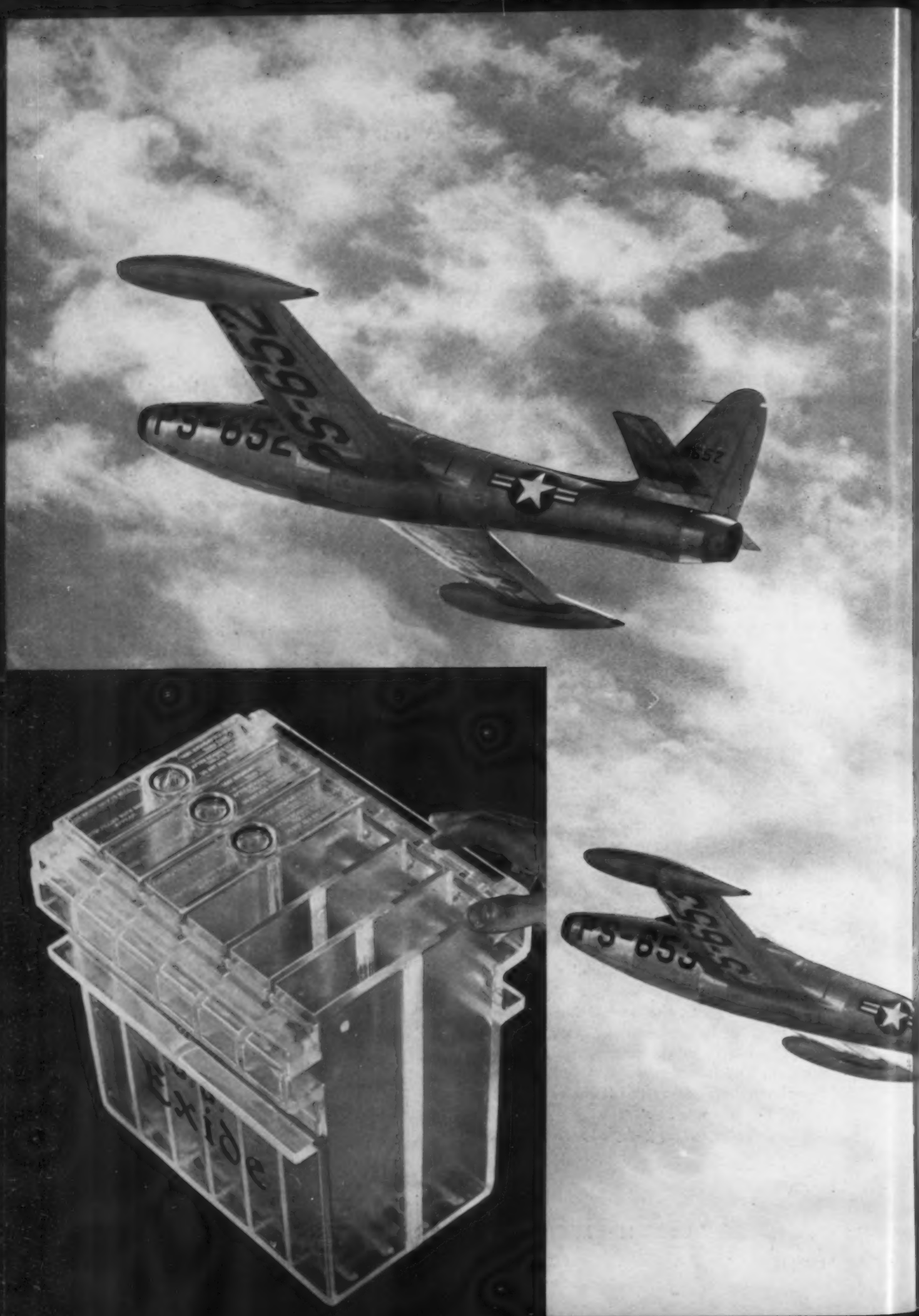
Mixing bowls, refrigerator dishes, cups, saucers, and tumblers are usually rigid, somewhat heavy, cold to the touch, glossy, and quite breakable. Polyethylene, on the contrary, is flexible, light in weight, warm to touch, somewhat cloudy of surface, and virtually unbreakable. In addition, polyethylene is translucent, rather than opaque like china or transparent like glass.

Despite some of these differences and because of others, polyethylene proved an excellent basic material for the refrigerator bowls, tumblers, jiggers, cups, saucers, pitchers, ice buckets, and canister sets which are molded and marketed by the Tupper Corp., Farnumsville, Mass.

The chief advantage of polyethylene in all these applications is the fact that it is virtually impossible to break the molded items in ordinary use. The light weight of the material and its lack of taste, odor, or toxicity also recommend it. The fact that water does not adhere to polyethylene makes the items easy to dry when they are washed.

The flexibility of polyethylene makes it possible to squeeze the bowls to form pouring spouts. Flexibility is an even greater advantage in the refrigerator dishes, bowls, canister sets, and ice buckets because it makes possible tighter-sealing covers than would be possible with a more rigid material.

Designer: Earl S. Tupper. Polyethylene compounded by Tupper Corp. from resins and materials supplied by Bakelite Corp., New York, N. Y.; Calco Chemical Co., New York, N. Y.; E. I. du Pont de Nemours & Co., Inc., Arlington, N. J.; Harmon Color Works, Inc., Paterson, N. J.; and National Aniline Div., Allied Chemical & Dye Corp., New York, N. Y. Machinery: Reed-Prentice Corp., Worcester, Mass.


Exide

INDUSTRIAL AND MACHINERY

AWARD

To The Electric Storage Battery Co.

WHEN the Electric Storage Battery Co., Philadelphia, Pa., maker of Exide batteries, was asked by the U. S. Army to provide a 24-volt battery capable of producing 15 horsepower for three minutes—the complete battery not to weigh more than 150 pounds—the project was so secret that the company was not even told of the ultimate use to which the battery was to be put. But it can now be told that the battery was planned for use in jet planes.

The battery had to have a container that would permit a ratio of power to cubic content and weight greater than any heretofore possible. Plastics was a natural selection for the container material, and polystyrene was decided upon because of its specific gravity, acid and electrical resistance, and ability to resist distortion at moderately high temperatures.

The injection machine used on this job was not a standard unit, but was completed and assembled by the molder from components obtained from various manufacturers. While this work was being done, Exide engineers perfected the battery design. The result of this combined effort is a battery that offers more starting power for less space and weight than any other non-spill lead-acid battery in production. The non-spill feature is important in aerobatic flying, and the use of plastic parts makes for positive leak-proof construction.

Other features are connections for venting gas automatically on charge and discharge, a "no-overflow" device to prevent over-filling, and complete filling and operating instructions molded into the plastic.

Materials: Dow Chemical Co., Midland, Mich.; Bakelite Corp., New York, N. Y.; Monsanto Chemical Co., Springfield, Mass. Molds: Special Machine Tool Co., Boston, Mass. Molder: Prolon Plastics Div., Pro-phy-lac-tic Brush Co., Florence, Mass.

←JET PLANE PHOTO COURTESY REPUBLIC AVIATION CORP.

JEWELRY AND NOVELTIES

AWARD

To Xpray Corporation

A NOVEL atomizer, made of plastic and metal, that is more durable, more convenient to use, and more attractive in appearance than the conventional rubber bulb atomizer, is manufactured under U. S. patents and other patents pending by the Xpray Corp., New York, N. Y.

The three plastic parts of the atomizer, which is called the Xpray, are molded of urea, chosen for its dimensional stability and its resistance to the alcohol and aliphatic esters used in perfumes. Ivory, black, pink, or blue Beetle is used to mold the parts.

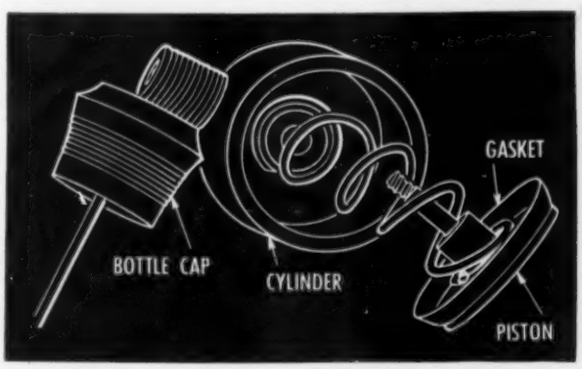
A urea cylinder and spring-operated piston take the place of the bulb. The disk-like piston is fitted with a leather gasket to aid in forcing air through the orifice. A metal spring returns the piston to its normal position after it is pressed in. The third plastic part is the cap which screws onto the bottle.

The combination of lustrous colored urea and gold-finished metal give the Xpray a luxurious appearance at a moderate cost. And it retains this appearance because the plastic parts will not soil as do stocking-covered rubber atomizers.

Since the Xpray is rigid, it can be used with one hand. It continues to work efficiently because the plastic will not deteriorate. The metal spring has been tested for fatigue, and showed no sign of wear after 280,000 compressions.

The Xpray is marketed in attractive boxes with 1½ to 4 ounce beautifully designed clear crystal or colored bottles specially molded for use with the atomizer.

Material: American Cyanamid Co., New York, N. Y. Molder: Plastic parts, Xpray Corp.; glass bottles, Wheaton Co., Millville, N. J., and Swindell Bros., Baltimore, Md.



LIGHTING

AWARD

To Lightolier, Inc.

THE ability of acrylic material to "pipe" light is the technical basis of Decoralite, a product of Lightolier, Inc., New York, N. Y. By abrading and engraving the rear surface of a sheet of acrylic, the path of light from one edge to the other is interrupted sufficiently to bring out the design. By painting the back of the sheet, color may be added to the design. The combination of color, lighted engraving, and a dark background produces an effect not otherwise obtainable. Backlighting would make the picture too bright; edge lighting gives it quiet, glowing life with a three-dimensional effect.

Decoralite does not replace any former lighting device; it opens up an entirely new field of illumination. Functional as well as decorative, it is both a framed picture with integral illumination and a lighting fixture for use over bookshelves, mantles, beds and cabinets. Two Lumiline fluorescent lamps, one in the top of the metal frame and one in the bottom, may be turned on or off independently, so that light may be directed up or down or both ways, while the picture remains illuminated in either case and the illumination is always glareless.

Special formulations of paints for acrylic material are used by the fabricator and are screened on in a series of standard designs. Engraving is done by hand. Since light is available to the plastic sheet from above and below, a basic rule of acrylic engraving illumination is followed by making the cuts deeper at the center of the sheet than at the edges, to assure an even glow all over.

The metal frames are enamelled in ebony or Chinese red with gold edges or in beige, depending on the picture design and the background color. Decoralites are available in three sizes.

This is an instance in which a plastic, due to its carvability, colorability, optical property, and light weight, was used to create a new product market.

Material: Rohm & Haas Co., Philadelphia, Pa. Fabricator: Endicott Corp., Boston, Mass.

MEDICAL SCIENCE

AWARD

To Dr. A. Alfred Nelson

TO restore mutilated hands and other parts of the body to such a realistic appearance that they defy anything but the closest scrutiny has long been the objective of Dr. Alfred Nelson, Royal Oak, Mich., and his staff. After many years of research and experimentation they developed the Flexi-Derm Cosmetic Hand which gives almost exact natural skin color reproduction with pigmentation, joints, knuckles, palm areas, veins, and even hair to simulate a normal hand. Even finger prints can be reproduced in the resins from which the hand is molded. Similar fidelity of appearance has been achieved for legs, ears, noses, and other portions of the face and body. In the photographs on the opposite page, the right hands of both subjects are Flexi-Derm restorations.

The hands may be fitted like a glove over a suitable core or frame, or used with various finger control mechanical devices. The material is almost ageless as natural skin, has a warmth that is pleasing to the touch, and when soiled may be wiped clean with soap and water.

The vinyl resins used in the artificial hand can be molded at very low pressures, contain pigments or fillers but no volatile solvents, and have a high viscosity flow comparable to heavy oil.

A mold is made by taking an impression of a hand which is similar to that of the patient and then forming a casting of dental plaster from the impression. This male core serves as a master from which a two-piece sprayed metal mold is then made. After the mold has been made, rigid vinyl finger nails are fixed in place, various colors are introduced to reproduce skin tones, and a base skin tone is applied. The two halves of the mold are then joined together, the resin composition is poured into the mold, and heat is applied. Realism in the finished hand extends to hair which may be inserted with a specially designed needle.

Materials: Vinylite resins, Bakelite Corp., New York, N. Y.; plasticizers, Carbide & Carbon Chemical Corp., New York, N. Y.; compounding by Nelson-Kramer Corp., Royal Oak, Mich. Molds: Nelson-Kramer Corp.

MERCHANDISING

AWARD

To American Cyanamid Company

COLORED thermosetting plastics, especially urea formaldehyde, have been molded into tableware for many years. Dishes, bowls, and tumblers so made have been sold for household use through many chain and department stores or offered as premiums with cereals and other packaged foods. For picnic and breakfast use they have served households well.

The huge tableware market in restaurants, however, was practically closed to plastics until the arrival of melamine molding powder. In this market, dishes are accorded severe punishment both in use and in cleaning.

Melamine-formaldehyde molding powder was introduced in 1939 as an alpha-cellulose filled compound. Possessing properties of low water absorption, surface hardness, a wide range of color possibilities, resistance to boiling water, staining, and chemical attack, as well as being odorless and tasteless, it was obviously a prospective material for the restaurant tableware field.

Before any commercial development of the application could be promoted, the U. S. Navy began to order melamine tableware for service aboard ship where rough seas and the impact of gun fire would shatter ceramic products. Where possible, molders adapted molds designed for plastics household tableware to the Navy's use, developing thicker wall sections and more substantial and durable pieces. The Navy's war-time experience with these melamine dishes was so encouraging that in 1945 American Cyanamid Co., makers of Melmac molding material, decided to investigate thoroughly the possibilities of this plastic in the large-volume restaurant tableware market.

Policy on this market-probing program was based on one essential point; the material itself would be assayed. To do this and to eliminate pre-conceived notions regarding plastics, the following four steps were undertaken: a) sales price would be disregarded; b) the most competent technical men in development and plant laboratories would be assigned to the project; c) a well-known and capable outside designer of tableware would be retained; d) restaurants would be consulted on properties desired and on results of actual service tests.

Russell Wright, leading designer of ceramic tableware, was retained to design melamine tableware service thick enough to withstand rough, fast handling, yet with ample esthetic appeal. Restaurant operators were consulted

about shapes and capacities of dishes. Molding problems were considered on such matters as handle shape, flash point, and finish, while kitchen handling problems were worked out in design for ease of stacking, shape of lips, and diameter of pieces.

Under American Cyanamid supervision a set of molds was built by Newark Die Company and placed in production in Cyanamid's control laboratories where production variables could be eliminated and molding technique and control data could be collected.

The Melmac tableware made under these conditions were put into service on a full and standard treatment basis in nine restaurants. Yellow, powder blue, coral and white dishes were supplied in both hard and soft water areas and where both service and cleaning treatment would be most severe.

While the design and test projects were going on, Market Research Corporation of America surveyed and analyzed potential consumer markets for melamine tableware and American Cyanamid surveyed the commercial markets.

Results of all three projects were made freely available to all interested molders. Data covered design, production methods, and sales potentials.

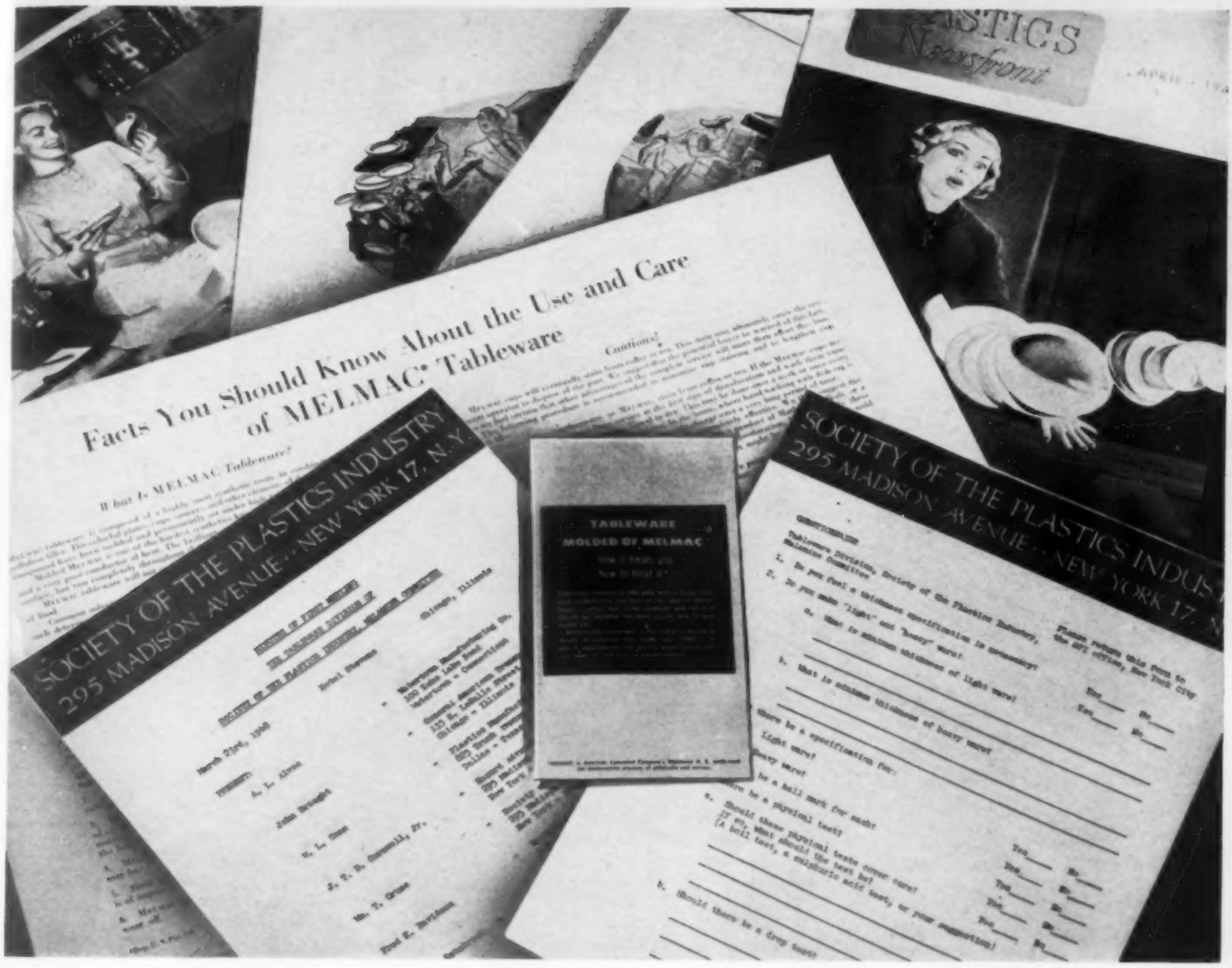
Having clearly established the excellence of the product, the company then proceeded to build a demand for it so that molders might be encouraged to make the necessary substantial investment in setting up production of Melmac tableware. Advertising at the domestic retail level was used in magazines reaching consumers and merchandisers of tableware. The commercial market was reached through trade publications in that field. The interest of molders was encouraged by direct contact and by advertising in publications serving the plastics industry. Direct mail was used intensively at all three levels, including case history reports in Cyanamid's own publication, "Plastics Newsfront." Publicity about the research projects and their results as well as straight product publicity went into newspapers, general magazines, and trade journals.

After this product and market research (the first is a continuing project with frequent reports to molders) and the sales promotion project on behalf of Melmac tableware, Cyanamid's next step was to protect acceptance by suggesting establishment of voluntary quality control on a minimum standard basis, by promoting the use of informative labeling, and by encouraging product identification.

To set up minimum standards of quality, American Cyanamid sponsored and coordinated the formation of the Tableware Association of the Society of the Plastics Industry—Melamine Committee. Informative bulletins and leaflets based on data accumulated during laboratory, production, and sets-in-use tests have been made available to all members of this association. Work on the voluntary standards is proceeding through the S.P.I. in cooperation with the Bureau of Standards, Washington, D.C., and a questionnaire survey was conducted among molders by S.P.I. to help this project.

With minimum standards of quality under way, with production and marketing of melamine tableware increasing manyfold, the company suggested that an identifying mark be developed signifying that tableware molded of melamine is in compliance with such standards.

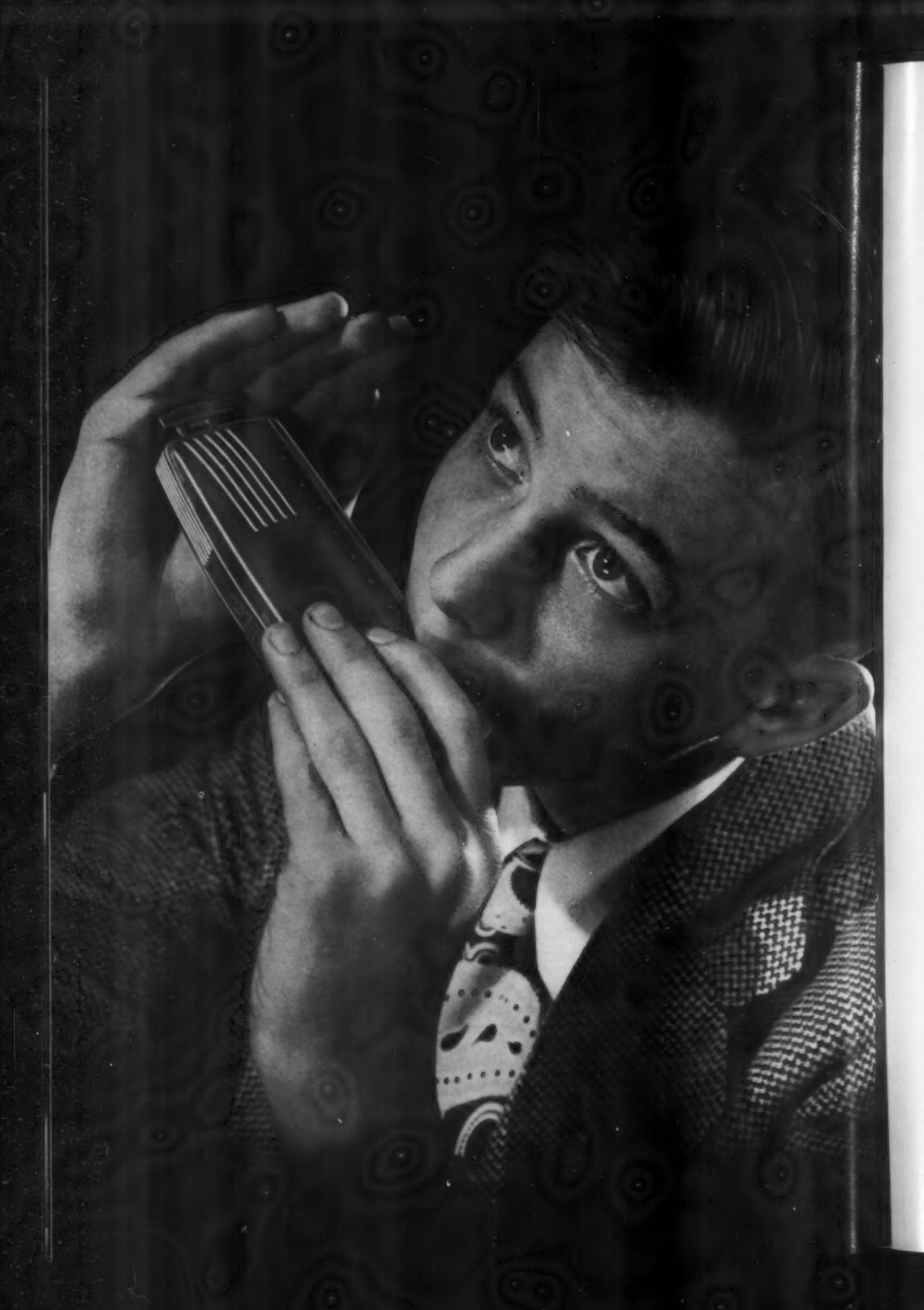
Finally, educational folders for consumers, for dealers, for salesmen, and for commercial users have been supplied in great quantities. Facts about the use and care of this tableware, many of which were developed through the extensive cooperation and advice of detergent manufacturers, Government agencies, colleges, and restaurants, are plainly stated in this literature.


Facts You Should Know About the Use and Care of MELMAC Tableware
SOCIETY OF THE PLASTICS INDUSTRY
295 MADISON AVENUE · NEW YORK 17, N.Y.
TABLEWARE
MOLDED OF MELMAC

Merchandising program for melamine tableware included ads in consumer and trade publications, articles in manufacturer's own magazine, direct mail, sponsoring of trade association, and informative labelling

Result of this three-phase merchandising project: sales of melamine resins for molding tableware have increased 800% in the past year and are expected to double again in 1949. The number of molders specializing in tableware molded of Melmac material has more than doubled since 1946. Melamine tableware for commercial use is no longer experimental. It is now standard with many large restaurants.

Molders of Melmac tableware, as of May 15, 1948: Applied Plastics Div., Keystone Brass Works, Erie, Pa.; Boonton Molding Co., Boonton, N. J.; Devine Foods, Inc., Chicago, Ill.; General American Transportation Co., Chicago, Ill.; Hemco Plastics Div., The Bryant Electric Co., Bridgeport, Conn.; Maple Leaf Plastics Co., Toronto, Canada; Nichols Plastic and Engineering Co., Los Angeles, Calif.; Northern Industrial Chemical Co., South Boston, Mass.; Plastic Manufacturing Co., Dallas, Tex.; Plastics Incorporated, St. Paul, Minn.; Watertown Manufacturing Co., Watertown, Conn.



MUSICAL INSTRUMENTS

AWARD

To Magnus Harmonica Corporation

BEFORE 1945, virtually all harmonicas sold in the United States were made in Germany, Czechoslovakia, or Japan. The harmonicas had as many as 150 wood and metal parts. In the simplest harmonica, the reed section alone had 42 parts—including 20 individually machine-ground and hand-tuned metal reeds. Only cheap foreign labor could be used economically in the laborious assembly process.

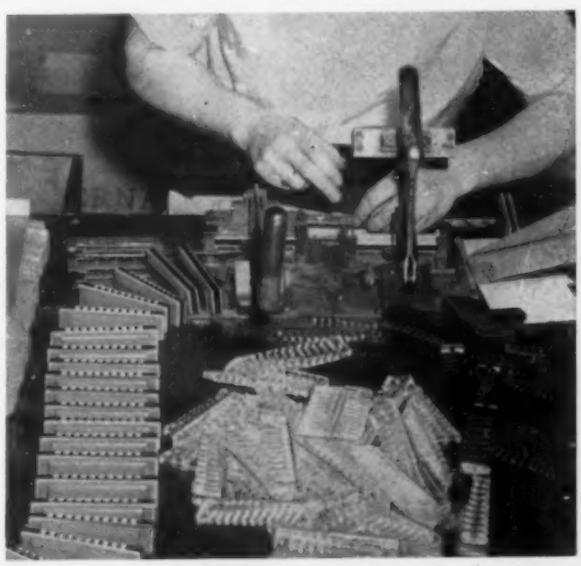
During the war, when the supply for foreign harmonicas was cut off, Finn H. Magnus, who liked harmonicas and knew plastics, decided to find a simpler way of making harmonicas. He finally solved the problem by designing a polystyrene reed section which could be injection molded in one piece, with each reed an integral part of the plate. Perfect tune is assured because tolerances of plus or minus 0.0001 inch are held during molding.

This reed made it possible to manufacture a harmonica with only five parts, all molded of polystyrene. The parts are: a top cover, a bottom cover, a blow reed-plate, a draw reed-plate, and a center comb section. The assembly operation consists of putting the five components in place and applying pressure with a hand press.

The all-plastic harmonicas are manufactured by Magnus Harmonica Corp., Newark, N. J., in various sizes. In addition to the ease of production and the resultant price advantage, Magnus harmonicas are washable, do not have the "tinny" taste of metal instruments, and can be molded in virtually any color. With production in many millions of units yearly, Magnus has reversed the century-old harmonica industry—America now dominates the field as an exporter to the world market, instead of an importer.

The Magnus line now ranges from a ten cent store model to a professional type chromatic harmonica.

Materials: Bakelite Corp., New York, N. Y.; Monsanto Chemical Co., Springfield, Mass. Machinery: Reed-Prentice Corp., Worcester, Mass.



MUSICAL INSTRUMENTS

AWARD

To Pratt, Read & Company, Inc.

THE increased post-war demand for pianos created a production problem for the world's largest supplier of piano actions and piano keys, Pratt, Read & Co., Inc., Ivoryton, Conn. High grade white maple, the material which had been used for piano actions for generations, was in short supply. There was also a shortage of the specialized machinery needed for manufacturing wooden piano action parts—and it would have taken many months or even years to build more such machines.

Like many other manufacturers with similar problems, Pratt, Read turned to plastics. As is often the case, the end result was a better product which could be produced with less machinery and less labor.

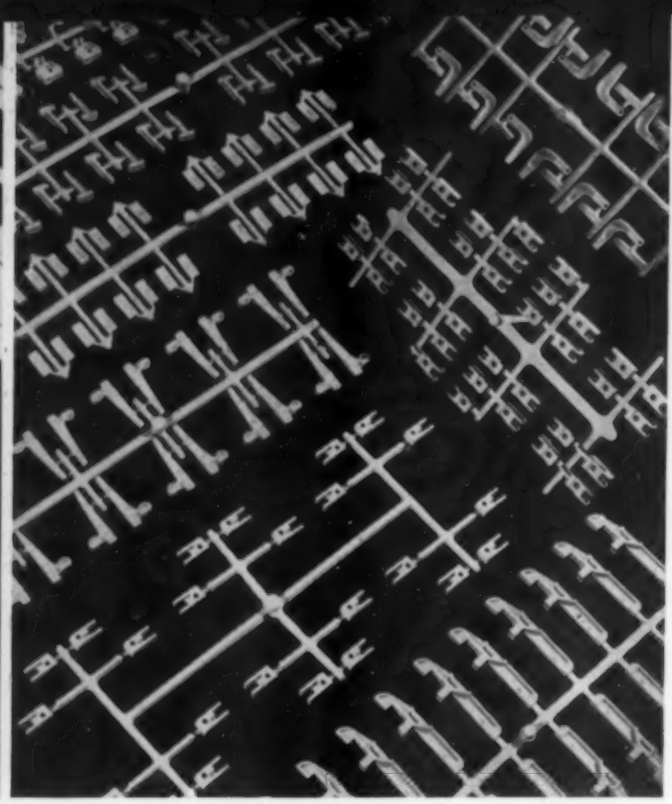
Piano actions are made up of 70 or more parts connected to each key, all of which must retain their dimensional characteristics for a minimum of 20 years under all normal conditions of humidity and temperature changes. To determine the suitability of various materials, extensive tests were conducted by Pratt, Read in cooperation with the Dow Chemical Co., Midland, Mich., and the General Electric Co., Pittsfield, Mass. Piano actions made of wood, ethyl cellulose, and other plastic materials were tested side by side under varying accelerated conditions of humidity and temperature until destruction or until an equivalent of 20 years of usage had been reached.

The final decision was that the injection molded ethyl cellulose actions were superior to wood or to the other plastics tested. One of the materials chosen was Ethocel Q-594.1, a special formulation developed for the application. The formulation has a lower plasticizer content than other grades of the material so as to incorporate a greater degree of rigidity in the molded parts. Another formulation used is Ethocel Q-538.

In the comparative tests, the piano actions were operated inside a humidity machine with a cam-operated electric counter attached to the shaft of the

←PHOTOGRAPHY BY LOUIS HOEBERMAN IN THE NEW YORK CITY SHOWROOM OF WM. KNABE & CO.

Black keys, formerly fabricated of hard wood, are now molded of phenolic. White keys, made of wood, are covered with cellulose nitrate sheet which will not discolor or crack as easily as ivory



Shots shown above are typical of those molded from ethyl cellulose as parts for two types of piano actions. Special formulation developed for the application has lower plasticizer content, greater rigidity

action. Tests were made at temperatures ranging from 40 to 120° F. and relative humidities from 10 to 100 percent. Each action was tested for more than 2,000,000 strikes. The tests disclosed the following advantages of ethyl cellulose actions over wood: 1) better dimensional stability than wood, particularly under conditions of high humidity; 2) quicker and more complete return to normal after exposure to extreme temperature and humidity conditions; 3) better adhesion of felts and leather; and 4) less distortion and warpage under extreme conditions. These laboratory tests have since been verified by almost two years of experience with the ethyl cellulose piano actions in actual service.

Molded ethyl cellulose parts are used by Pratt, Read in two different types of piano actions: the direct blow action and the drop action. Both are used in spinet type pianos. A complete action uses about 3½ lb. of ethyl cellulose. Current production requires over 3,000,000 plastic parts per month, and the parts are produced in molds ranging from 16 to 36 cavities each. Both types of actions and a number of shots of various components are shown in accompanying photographs.

Plastics have also been adopted by Pratt, Read for its piano keys. The sharps, or black keys, had in the past been fabricated of ebony, boxwood, birch, maple, or other hard woods. The complicated manufacturing process included forming and shaping, dyeing and drying, hand sanding, filling and polishing. In place of all this, Pratt, Read now uses compression or transfer molded phenolic sharps. The molded plastic sharps have greater dimensional stability, greater uniformity of dimensions, a more uniform finish, and greater strength than the wooden sharps. They are relatively impervious to moisture and heat.

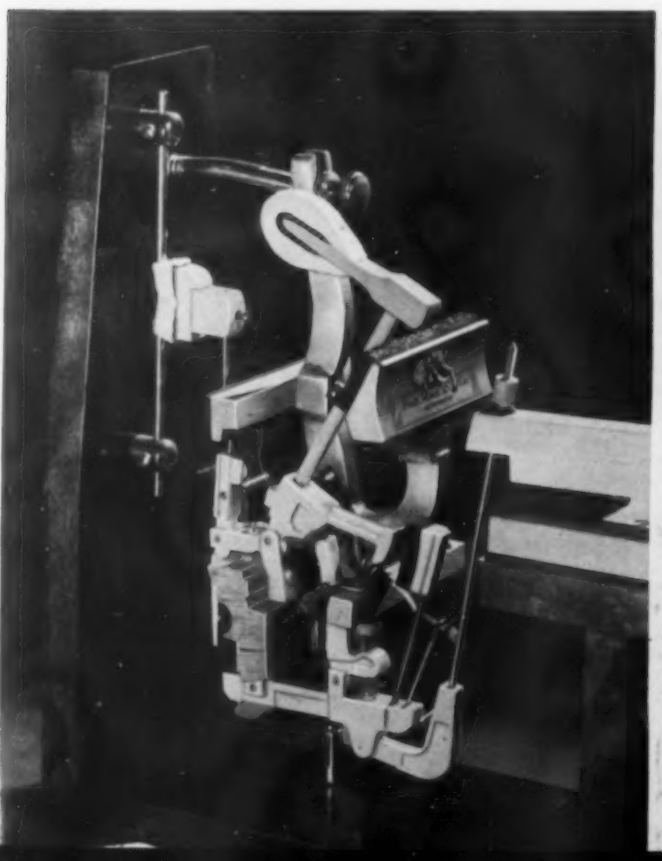
Perhaps most important of all, the switch to plastics has eliminated many finishing operations, allowed the company to dispense with many special machines, and saved valuable factory space. The company now uses about 400,000 molded plastic sharps per month.

Pratt, Read's white piano keys are still made of wood, but plastics have replaced ivory for the top covering on a great majority of the keys. The cellulose nitrate sheet used for this purpose is less likely to discolor or crack than ivory, and has simplified assembly operations. When ivory was used, each white key used three separate pieces: a strip which covered the narrow back part of the top (up to the front of the black key), a strip which covered the front part of the top, and a piece which covered the vertical front face of the key.

The cellulose nitrate coverings are blanked from sheet stock all in one piece and are then folded at a right angle to cover the top of the key and the front as well. This not only cuts down the number of operations, but it makes a cleaner looking, more attractive key.

Materials: ethyl cellulose, Dow Chemical Co., Midland, Mich.; phenolic, Bakelite Corp., New York, N. Y.; Chemical Div.—The Borden Co., Philadelphia, Pa.; Durez Plastics & Chemicals Co., North Tonawanda, N. Y.; cellulose nitrate, Celanese Corp. of America, New York, N. Y.; Monsanto Chemical Co., Springfield, Mass.; Nixon Nitration Works, Nixon, N. J. Molds: Bridge Tool & Die Co., Philadelphia, Pa.; Consolidated Molded Products Corp., Scranton, Pa.; Plastics Div., Chemical Dept., General Electric Co., Pittsfield, Mass.; Liberty Tool & Machine Co., Irvington, N. J.; Mack Molding Co., Wayne, N. J.; Plastic Industries, Inc., Milford, Conn. Machinery: Improved Paper Machinery Corp., Nashua, N. H.; Watson-Stillman Co., Roselle, N. J. Molders: Connecticut Plastic Molding Co., Essex, Conn.; Consolidated Molded Products Corp., Plastics Div., Chemical Dept., General Electric Co., Mack Molding Co.; Shaw Insulator Co., Irvington, N. J.

Drop action is designed for pianos in which the action cannot extend too far above the keyboard. Working model of this type action is shown below with inner part of key visible at right



In direct action, model of which is shown below, all parts are higher than the keyboard. Inner end of key enters picture at lower right hand corner. This type action has 79 wood, metal, and plastic parts

DELRICH
COLOR

To The Cudahy Packing Company

OLEOMARGARINE has for years been prevented by certain laws from being sold when colored to resemble butter. The seller may furnish a separate capsule of coloring matter, but the buyer must do her own mixing.

The Delrich E-Z Color Pak Margarine Bag, introduced by the Cudahy Packing Co., Chicago, Ill., complies with the laws yet makes color mixing simple and easy for the buyer. As a result, Delrich sales increased tremendously in 1947 over 1946. The objective in the design of this bag was to package uncolored oleomargarine in such a manner that the consumer could color it in a few minutes without wasting the product or soiling dishes and hands.

The objective was accomplished by enclosing the oleomargarine in a sealed bag of vinyl film modified with nitrile rubber. The plastic bag is formed either from a continuous extruded tube or from sheeting fabricated into tube form. The bag possesses the properties of being waterproof, greaseproof, highly impervious to moisture, non-toxic, and heat-sealable, and of retaining to a high degree the flavor and freshness of its contents.

The coloring matter is enclosed in a gelatin capsule which has low moisture absorption qualities combined with relatively high rupturability. The capsule is secured to the inside surface of the bag by a patch of perforated film. The perforations in the trap are designed to permit exit of the coloring material while retaining capsule fragments.

The bag is shaped to a brick form as the oleomargarine solidifies upon cooling after being poured into the bag in a warm, flowing condition. When the housewife is ready to color the margarine, she simply removes the bag from its carton and allows the contents to soften at room temperature. She then pinches the capsule to break it and release the coloring fluid, after which she simply kneads the margarine, still sealed in the bag. The bag may then be reformed to brick shape, replaced in the carton and stored in the refrigerator to re-harden before use.

Designer: Leo Peters, Lion Rock Corp., Evanston, Ill. Material: Visking Corp., Chicago, Ill.; Bakelite Corp., New York, N. Y. Converter and fabricator: Shellmar Products Corp. Mt. Vernon, Ohio. Color capsule: Gelatin Products, Detroit, Mich.

PHOTOGRAPHIC EQUIPMENT AWARD

To David White Company

ONE of the newest developments in photography is a 35 mm. camera with which amateurs can take their own three-dimensional pictures. The camera, known as the Stereo Realist, has two lenses and takes two color transparencies simultaneously. The two transparencies can then be mounted on a single slide to be viewed just like the old-fashioned stereoscopic pictures.

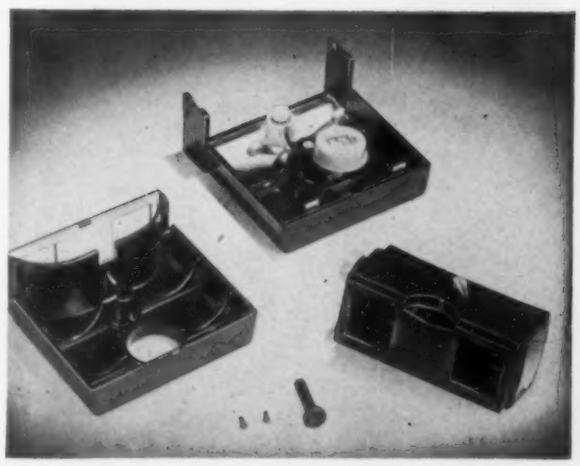
The David White Co., Milwaukee, Wis., which manufactures the Stereo Realist, thus had to design a suitable viewer to go with the camera. To get the precision, appearance, and performance necessary in such a viewer, the company turned to plastics.

The viewer had to be a precision instrument so that the stereoscopic pairs produced by the camera would be seen clearly and realistically. The fact that the viewer was to contain batteries and a bulb to backlight the transparencies necessitated complex shapes in the interior of the viewer. Light weight and a pleasant feel were also desirable.

The material finally chosen to fill all these specifications was a wood flour filled black phenolic. To make the light switch button readily distinguishable and to add a touch of color, red urea was selected for that part and for the small focusing knob.

The viewer has achromatic doublet lenses which can be focused to fit the eyes of the individual user. The distance between the lenses can also be varied to fit varying inter-ocular distances. Pairs of transparencies must be mounted on a special slide to be used in the viewer. The White Company does the mounting for a nominal charge or camera owners can do it themselves with a specially designed jig.

Material: Phenolic, Bakelite Corp., New York, N. Y.; urea, Plaskon Div., Libbey-Owens-Ford Glass Co., Toledo, Ohio. Molds & molding: Chicago Molded Products Co., Chicago, Ill.; molds made of C.S.M. 2, supplied by Crucible Steel Co., New York, N. Y. Machinery: Elmes Engineering Works of American Steel Foundries, Chicago; French Oil Mill Machinery Co., Piqua, Ohio.



SCALE MODELS

AWARD

To Hotpoint, Inc.

MADAM may now see exactly how the units of her new Hotpoint kitchen are going to be arranged, even before she decides on the exact equipment she is going to purchase. In fact, she'll get a photograph of the final arrangement in advance of installation! This convenience to prospective buyer and to salesman alike is made possible by the ability of a plastics fabricator to produce scale miniatures of Hotpoint ranges, refrigerators, other appliances, and cabinets with realistic detail. These fabricated models are complete even to cabinet door and drawer handles, faucets on sinks, and heating units on ranges, the latter simulated by printed pieces glued in place. Detail attention is carried even to the miniature windows which are provided with vinyl curtains.

When the Hotpoint salesman calls on the prospect, he opens his planning kit, the inside bottom of which becomes the model kitchen floor, marked off to scale, with a paper "floor" printed to look like blue tile or linoleum squares. Two sides of the kit become walls, while a third wall is a movable accessory. Setting up the walls to scale, the salesman then places the models where the prospect would like to have them in her kitchen for maximum convenience and a minimum of steps. Wall units, doors and windows are hung from walls by means of flanges produced in the fabrication. After a satisfactory layout has been agreed upon, the model is photographed for the customer's permanent reference.

The company started its planning kit program using wooden models which were found unsatisfactory. The fabricated plastics units have white acrylic shells, black bases, and red work surfaces. A dinette table has a black base, transparent rod standard, and circular red top.

Material: Rohm & Haas Co., Philadelphia, Pa.; Fabricator: Regal Plastic Co., Kansas City, Mo.

To Aero Service Corporation

LIGHT weight, durable, easily cleaned relief maps made from vinyl sheet are now being used in geology and geography classes throughout the United States and in some foreign countries; in 1944, their fore-runners were being used in radar bomber trainers. The maker of these maps is Aero Service Corp., Philadelphia, Pa.

Previously, most relief maps were actually hand formed, hand lettered and colored models. Often the material used was heavy plaster. They were expensive and fragile. But the new plastic relief models are easy and inexpensive to ship, and they can be readily stored or displayed. Moreover, a portfolio of 12 such plastic maps may be bought for a fraction of the cost of a single plaster model.

The first step in the mass production of the new maps is to preprint white vinyl sheets with map information before the maps are formed to show the contours. U. S. Geological Survey quadrangles are used to obtain this map information, which is printed on the vinyl in three colors.

Making of the master forming model is the heart of the process. The same map information as is printed on the vinyl is photographed on both sides of an aluminum sheet, in register. This sheet is then carefully formed on the Reliefograph, a device which has a small, motor-driven trip hammer that embosses the aluminum sheet. The modeller works from the negative side of this sheet so that the mountains, for example, are pushed *down* rather than thrust up. Starting with the lowest contour and working up finally to the highest one, skilled craftsmen form and shape the aluminum sheet until it represents the contour information on the map and the physiography of the region. An "altitude control" on the Reliefograph governs the depth to which the mountains are pushed, so that extreme accuracy of contours is obtained.

A plaster mold then is cast on top of the finished master. The printed plastic

Left: The master model—an aluminum sheet—is carefully formed by the Reliefograph, a small motor-driven trip hammer which embosses sheet

Right: A close-up of master model and trip hammer. The modeller works from the negative side of the sheet so that the mountains are pushed down rather than thrust up. Physiography is closely followed

map sheet then is placed over this female mold in exact register, and heat and pressure are applied. The precise degree of heat and pressure and the time interval involved were worked out only after long experimentation and vary with each quad. Under this heat and pressure, the vinyl assumes the form of the mold, retaining this form when it cools. The result is a complete contour map in color.

Between the planning and successful production of the first of these quadrangles, there were a lot of problems to be solved. For one, there was the matter of finding the right plastic, light enough to be well adapted to packing, shipment, and classroom use, but dimensionally stable so that in handling or use it would not lose its form even slightly.

Schools and colleges have found the portfolios well within their budgets. They are sold only in the 12-quadrangle portfolios and marketed by direct mail by Aero Service from their plant in Philadelphia. Almost 400 colleges are using them in teaching physiography in geology and geography courses. Though they have been in use only a short time, educators hail them as an important advance. One leading Eastern college says: "They have served to show the meaning of contour lines better than any other visual aid we have used." From the Midwest comes the comment: "The models will revolutionize the teaching done with the aid of topographic maps."

Aero built thousands of four by six foot plastic relief maps of European

and Pacific target areas during the war. In training planes it reproduced accurately the patterns which would be seen on the radar scopes of bombers over target areas. Models were made for a number of European cities, and the B-29 bombings of Tokyo, Yokohama, Kobe, Osaka, and Hiroshima were briefed from these maps.

When the war ended, Aero Service started to develop maps as teaching aids. For many years educators had been seeking light weight, durable relief models for use in geology and geography classes. So when Aero sought out leading teachers in the fields of geography and geology, the company was encouraged to go ahead with its plans for mass production of these colorful, low-cost, new models.

With the aid of these educators, headed by Dr. Arthur Howland of Northwestern University, and with the advice of representatives of the U. S. Geological Survey, under the direction of Dr. Don Carroll, a portfolio of 12 quadrangles was selected to represent topography in 11 different states. Each of these quadrangles is approximately 17 by 22 inches in size and the plastic relief map of each weighs but four ounces.

In striking high relief, each quadrangle represents different physiographic formations. The Harrisburg, Pa., quadrangle, for example, shows parallel ridges indicating folded strata, water gaps, trellised and Dendritic drainage, superposed river and subsequent streams, and peneplains. The Point Reyes, Calif., quadrangle represents a submergent shoreline, with estuaries, by-mouth bars, hooks, and cliffed headlands.

Materials: Vinylite sheet, Bakelite Corp., New York, N. Y. Maps printed by Williams and Heintz Co., Washington, D. C., on a Harris LSJ offset press. Ink manufactured by International Printing Inks Co., New York, N. Y.

A plaster model is cast from the finished master. A four by six foot plastic map which has been placed over this mold and subjected to heat and pressure is shown being removed from the plaster mold

IRES
NORTH END SERVICE STATION
Tires
Batteries

SIGNS

AWARD

To Socony-Vacuum Oil Co., Inc.

FOR many years, Socony-Vacuum Oil Company, Inc., has used porcelain enameled metal cutouts of its famous Flying Red Horse trademark, mounted on the white walls of service stations for brand identification. These cutouts are made in five sizes ranging from three to six feet in vertical height. The three-foot cutout horse is embossed, but the high cost of the dies makes embossing of the larger units impractical.

The fabrication of these emblems in acrylic permits embossing in all sizes with a greater depth of draw than is practical with sheet metal. The third dimensional effect obtained gives a more lifelike form to the emblem, which is highly desirable. Integral color and light weight of the acrylic are additional advantages.

The plastic signs which won the award were formed from sheets of special red acrylic made exclusively for Socony-Vacuum. The sheet used for the four-foot horse was 50 inches square untrimmed and 3/16 inch thick. Major problems were to form the outside surface of the horse without abrading, in order to minimize polishing, and to prevent bridging of formed indentations in the surface. These objectives were attained by heating the sheet, placing it over a metal male form, and bringing air pressure of between 40 and 50 tons down on the outside surface through a pressure head on an air cylinder. Only air hit this surface so scratching was impossible, while accurate detail in the formed surface was obtained. The average draw was approximately five inches.

To conserve material, the front legs were molded under the rear legs, then fitted to the shoulder, cemented under pressure, and finished to eliminate any cement line.

In application, the horse sets approximately an inch away from the wall and is secured by studs and keyholes in brackets built into the sign.

Materials: Rohm & Haas Co., Philadelphia, Pa.; E. I. du Pont de Nemours & Co., Inc., Arlington, N. J. Fabricator: Steiner Manufacturing Co., Long Island City, N. Y.

SPORTING GOODS

AWARD

To Beetle Boat Co., Inc.

AS most owners of wooden boats know all too well, "It isn't the cost—it's the upkeep." Wooden boats have seams, which often spring leaks and must be caulked. Wood must be painted frequently, or it will rot. And wood is subject to attack by marine worms, severe climatic conditions, and ice. The Beetle Boat Co., New Bedford, Mass., which has been making wooden boats since 1791, was well aware of the disadvantages of wood. In 1946, the company decided to do something to eliminate the costly maintenance problems which kept sailing and boating in the luxury class. It began to investigate the possibility of replacing wood with plastics.

Beetle took the problem to the General Electric Co., Pittsfield, Mass. That company suggested using a glass mat and a plastic resin, and experimental molds were constructed for molding a small sailboat and a rowboat. Hulls were then tested by being exposed to all types of weather, submerged in tanks, left to freeze in the ice in winter, and generally maltreated. The molds were modified as "bugs" were discovered. After the completion of the tests, the company went into production on its BB sailboat and its BB-9 rowboat.

The BB sailboat has a one-piece hull 12½ feet long, with a 6-foot beam. A wooden boat the same size would weigh between 450 and 550 pounds but the BB weighs only 350 pounds. Its light weight permits handling without shipyard facilities, and the sailboat can be launched or beached like a rowboat without a cradle for support or storage. This ease of handling greatly reduces maintenance costs, as does the fact that the boat can be stored in the open without damage in any climate.

Most important of all from a maintenance standpoint is the fact that the hull

Bottom half of mold is rolled into position for removing sailboat hull molded of glass mat impregnated with polyester resin

One-piece 12½-foot hull is hoisted from the mold. Cavities are made of chromium-plated copper sheeting. Finished boat weighs 350 pounds

is absolutely rotproof, leakproof, and corrosion-proof. Current tests equivalent to 7½ years of outdoor exposure to salt water and intense sunlight show no noticeable deterioration, absorption of moisture, or change in appearance. No preservative is necessary and paint is used for appearance only. Barnacles will form on the hull, but they can easily be brushed off. A further guarantee that there will be practically no maintenance costs is the strength of the seamless molded hull which makes repair bills unlikely. The hull can strike rocks or be beached on rocky shores without damage. In some tests, .38 caliber pistol bullets fired at close range failed to penetrate the hull.

The entire hull of the BB sailboat including skeg, transom, centerboard box, gunwale, and part of the deck is molded in one piece. The deck and cockpit flooring are mahogany plywood and the coaming is solid mahogany. The hardware is chromium-plated bronze. The 18-foot extruded aluminum mast has a built-in groove which replaces the ordinary sail track, slides, and hoops. The mast is somewhat flexible, and tends to spill wind under adverse conditions, thus making the boat practically non-capsizable.

The sailboat is molded in a self-contained mold, using fluid pressure on a rubber blanket. The complete boat, including skeg, transom, centerboard box, gunwale, and parts of the deck is formed in a single operation. The lower half of the mold contains the hull cavity, and the upper half the deck cavity. The mold is made of chromium plated copper sheeting. Tailored pieces of Fiberglas are laid up and then sprayed with Laminac, a rigid type thermosetting polyester resin. Steam is used to supply both heat and pressure. The thickness of the hull varies; the bottom and keel are much thicker than the sides. The molding cycle is about two hours.

The same procedure is used to mold Beetle's BB-9 rowboat, except that

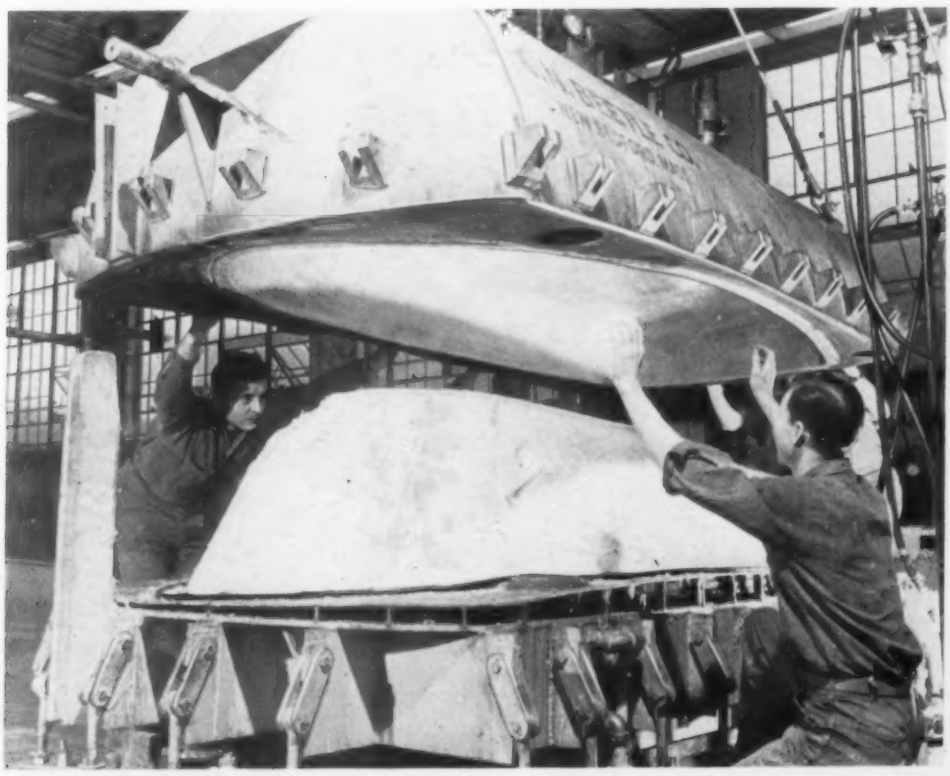
the rowboat mold is made of aluminum sheeting. The finished boat is 9 feet long, 54 inches wide, and 19½ inches high. Like the sailboat it has a seamless, one-piece hull. It weighs only 95 pounds and can therefore be lifted and handled easily by two young girls. Its light weight also makes it easy to transport on top of an automobile. It rows with unusual ease and can be towed with minimum drag. When powered with an outboard motor, the BB-9 is extremely maneuverable because of its light weight. An additional safety feature of the dinghy is the buoyancy which is molded into the hull by thickening and reinforcing the coaming with cellular cellulose acetate. This extra buoyancy helps to prevent the boat from capsizing and provides a self-righting effect if extreme conditions should swamp the boat.

Four metal oar lock sockets and three tying fittings are molded into the gunwales. Since they are flush with the gunwale, the clean lines of the boat are not broken by sharp corners or protrusions. The inside surface of the hull has no ribs, and its smooth surface is easily cleaned. The boat can carry five men with a total weight of more than 1000 pounds, and still have greater freeboard than most boats its size.

Because of the durability of the materials used to mold it, the BB-9 can be exposed to year round weather conditions without the inconvenience or extra expense of undercover storage. It can be placed in the water at any time and is ready for immediate use without the necessity of waiting for the boat to swell.

Material: Glass fiber mat, Owens-Corning Fiberglas Corp., Toledo, Ohio; polyester resin, American Cyanamid Co., New York, N. Y.; cellular cellulose acetate, E. I. du Pont de Nemours & Co., Inc., Arlington, N. J. Molder: Plastics Div., Chemical Dept., General Electric Co., Pittsfield, Mass.

One-piece rowboat hull, 9 ft. long, is produced in mold made of aluminum sheeting. Hull is molded of glass fiber mat and resin with cellular cellulose acetate in coaming for extra buoyancy



SPORTING GOODS

AWARD

To Durable Bowling Pin Corp.

TO a bowler the sound of a strike or a spare is music—music with a familiar tone obtainable only by smacking the ball against maple wood in the pins. To the bowling alley operator this music is expensive, since the wooden pins have to be discarded after 300 to 500 "strings" and have to be fairly frequently mended and re-finished.

Celcon ethyl cellulose, injection molded over a maple wood core, has given Durable Gold Stripe Pins the proper sound quality to please the bowler's ear, plus impact resistance to suit the alley operator. Proof of the ability of these candle pins to take repeated impact blows is the fact that they have stood more than 12 months of continuous use without cracking, chipping, or peeling. They cannot splinter.

The task of developing these pins was onerous, since the over-all weight had to be the same as that of a wooden pin and the resiliency had to be equal—this in addition to the important sound quality. Durable Bowling Pin Corp., Brookline, Mass., is the pioneer of this pin, and that company gives full credit to the molder for a thorough development and production job. The work is done in a single-cavity mold, one end being molded at a time over the core, Finishing is limited to cutting off the sprue on either end, countersinking the base, trimming off flash on the parting line, painting the gold stripe on the center groove, and numbering the pins.

Material: Celanese Corp. of America, New York, N. Y. Mold: Industrial Engineering Service, South Easton, Mass. Molder: Northern Industrial Chemical Co., South Boston, Mass.

TOLEDO

STORE AND BUSINESS EQUIPMENT

AWARD

To Toledo Scale Company

THE first plastics scale housing, introduced by Toledo Scale Co., Toledo, Ohio, 13 years ago, marked the beginning of a new era in the marketing and production of scales. The same company has now taken another forward step in scale design with its Toledo Guardian "70" Duplex Scale, which has a white urea housing so affixed to the scale mechanism that a "floating" or "no load" effect is created. By this design it is possible to avoid undesirable stresses and strains which would be encountered by direct attachment of the housing to the mechanism itself.

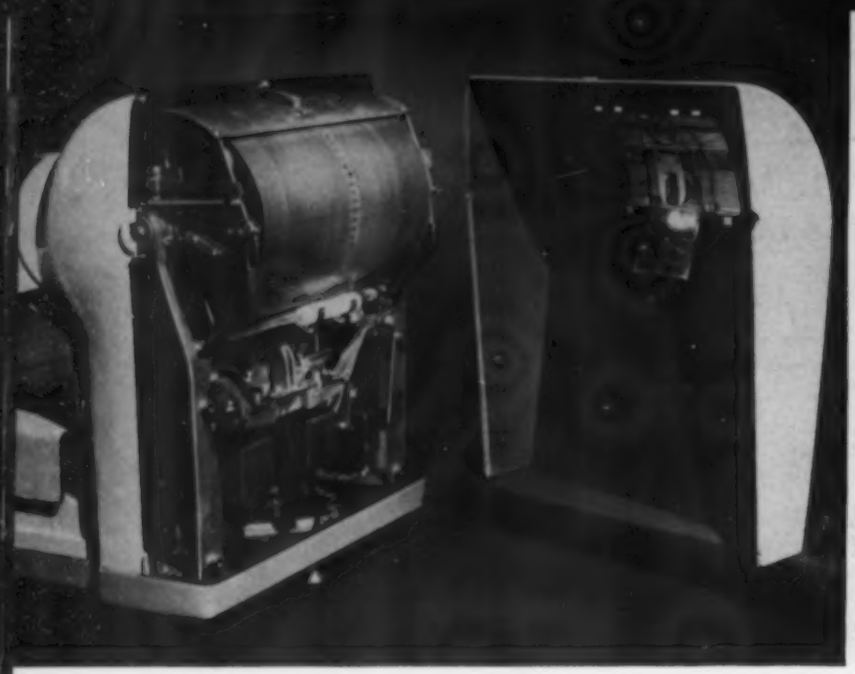
This new scale provides a major improvement in the computing accuracy in which this company has pioneered and brings to the merchant a new price range that matches the higher price levels of today. The model designation, "Guardian 70" indicates the number of prices per pound. This is by far the largest number ever offered to the merchant, giving him the complete price computing so necessary in the protection of his profit, and in serving his customers quickly and accurately.

The new "floating" housing, in three molded parts instead of the seven in the previous model, is cushioned against soft rubber. There are no screws on the upright part to cause direct compression on the plastic body, and the die-cast base is circled by a ribbon of rubber on which the housing rests.

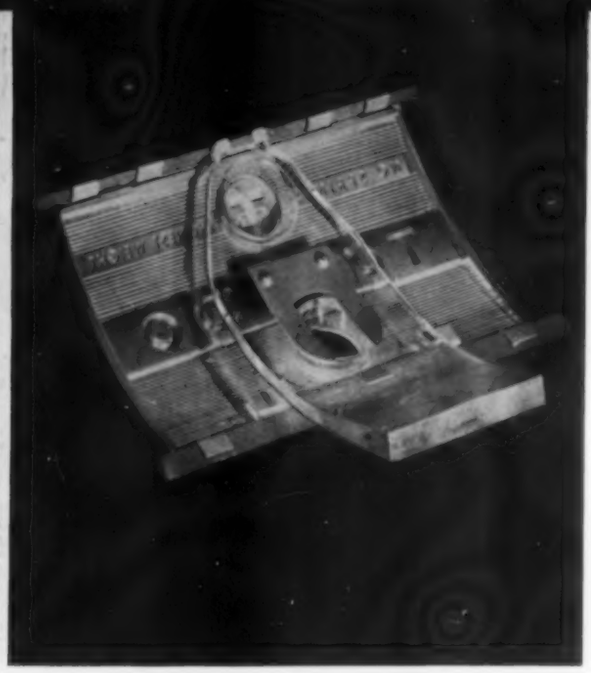
Thus, maximum expansion and contraction is permitted without undue strains or stresses, the possibility of shock is reduced to an absolute minimum, assurance is provided against the penetration of vermin, and access to the mechanism is easy at all times. The sanitary housing is easily cleaned, and full allowance has been made for conditions prevailing within stores, as well as for wide ranges of humidity and aridity in far flung global areas.

The pieces themselves have been designed not only with a knowledge of their characteristics, but they and the securing supports have been contrived to give top performance whether the scales are shipped to the dampness of Houston, Texas, or shipped to the dryness of Albuquerque.

Within the urea housing, Toledo Scale engineers have designed a weighing and computing mechanism that offers outstanding features for modern food store needs. A new duo-pendulum mechanism has been provided which, through ingenious design and precision manufacturing, gives high and predictable accuracy without the complicated adjustments required in older



Inside view of scale shows, in the housing part at right, position of acrylic light track and combined name-registration and weight-indication window



Close-up of acrylic name plate shows track which pipes light to trade mark and indication window

mechanisms. Re-leveling is no longer necessary for accurate operation.

Equally important have been the advances in the computing features, so vital to the merchant in converting meat and other items into price, at the scale, with today's high costs. Not only has the total range of prices been extended by 27 percent over conventional scales, but this new Toledo with 70 prices per pound offers the merchant nine times as many prices in the upper brackets as the best of the pre-war machines. The Duplex optical system used magnifies both vertically and horizontally. As a result, computations are read easily and quickly . . . and without distortion.

The designer of the scale kept functional necessity in mind and, because counter scales are constantly before the eye, balanced economic advantages with physical beauty. The housing is in the familiar white and gray of the manufacturer with its brilliant red circular trade mark and is a gracefully lined fixture of simple planes and well proportioned masses. The scale from any angle is marked by the simplicity and restraint which characterizes the new motif of this nation's industrial equipment. The new housing is free from unnecessary surface decoration of any kind. There are no dust catching crevices or indentations. Physically the new housing is a conception calculated to inspire confidence. It has an actual and suggested cleanliness pleasing to food store patrons; it has the suggestion of strength and solidity and conveys its message of accuracy and honesty.

In its engineering and styling, the new housing represents long, painstaking research. Starting with a general idea, assignments were given, and work progressed simultaneously under many specialists. Time and again department heads of the scale company were interviewed. Objective procedure was adopted with reference to users and members of the Toledo Scale Co.'s field organization. The information, viewpoint, and comment thus gathered were carefully correlated.

Next, the design staff and Toledo Scale Co. engineers visited several of the largest plastic molders to ascertain what mold capacities were available and to discover which of the basic approaches suggested by the designer were applicable to their particular equipment and practice. An adage peculiar to this assignment (the reverse is more often true) was followed. It was: "As molding goes, so goes design."

Many plastics were considered. Urea was chosen because it most ideally met all requirements, including color stability. In addition, its

strength, its hardness, and its imperviousness to alkalies and food acids as well as other ordinary acids, weighed in its favor. It possesses a high degree of chemical inertness. Ease and efficiency in assembly, economy in molding, and strength led inevitably to its selection.

The pieces making up the housing were so designed that strength is inherent without the addition of ribs. Any ribs added would cause a slight but objectionable change to appear on the exterior of the case.

At the same time that thorough study was being given to the housing, Toledo Scale engineers were proceeding with the development of the new scale mechanism. This new duo-pendulum mechanism incorporates not only traditional features of Toledo design but several important new developments that have come from the Toledo research-engineering program that is carried on continuously. Extensive use has been made of die-cast parts, the expense of the tooling being justified in the superior product that results, and in the ease and precision of assembly. Aluminum is the principal metal used in the new Guardian 70 Duplex, ranging from the massive die-cast base to the lighter-than-paper cylinder chart on which are printed the more than 129,000 figures and graduations that provide the price computations.

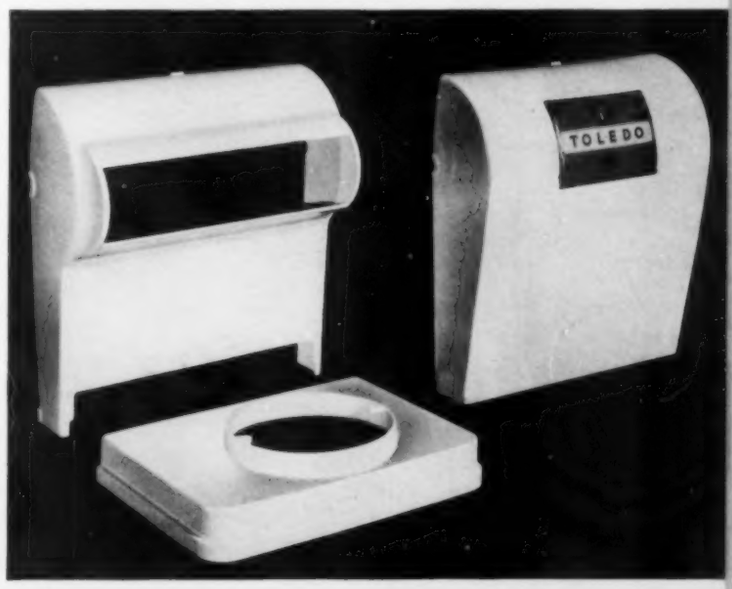
A part of the housing-design project was to illuminate the chart. While the shape of the Duplex lens provides adequate space for efficient lighting on the merchant's side of the scale, the illumination of the customer's side involved some special problems. Here two acrylic pieces are used. The piece the customer sees carries the trade mark, the famous "No Springs Honest Weight" slogan, and the window for the weight indication. The unseen acrylic piece is used to "pipe" light around the cylinder and reflects that light to both the customer's indication window and the trade mark. Both acrylic pieces are secured to the housing without the use of screws.

The combination name-registration and weight-indication acrylic window was designed so that the mold has removable plugs, making the trade mark and weight indication window interchangeable. This made it possible to eliminate the necessity of alternate molds which otherwise would have been needed, as the Guardian 70 Duplex is built in two styles, one for use on top of the meat case and the other for use on lower counters, or scale shelves. For the "case-top" model, the lower weight-indication window is used, and the trade mark appears at the top. In the "angular indication" style, this situation is reversed.

The space between the housing and the chart is so limited that the light bulb must be placed below the chart. The same light track is used for either horizontal or angular indication. In line with each circular land in the acrylic name plate, a corresponding round opening with a 45° taper was molded, directing the light on to the chart. A very interesting effect is obtained when the scale is used. The circular trade mark, which is backed up with white and red translucent paint, lights up at the same time as the light is reflected on to the chart as seen through the transparent window.

Designer: J. M. Little and Associates, Toledo, Ohio. Materials: urea, Plaskon Div., Libbey-Owens-Ford Glass Co., Toledo, Ohio; acrylic, E. I. du Pont de Nemours & Co., Inc., Arlington, N. J.; Rohm and Haas Co., Philadelphia, Pa. Housing molds by General American Transportation Corp., Chicago, Ill., and L and W Tool and Manufacturing Co., Milwaukee, Wis. Housings molded by General American Transportation Corp. on 1000 ton hydraulic press manufactured by Williams, White and Co., Moline, Ill. Acrylic name and indication plate mold by Hoosier Cardinal Corp., Evansville, Ind. Name and indication plate molded by Hoosier Cardinal Corp., on 28-oz. injection molding machine made by Watson-Stillman Co., Roselle, N. J. Acrylic light track mold by Crescent Industries, New Freedom, Pa. Light track molded by American Insulator Corp., New Freedom, Pa., on 12-oz. Watson-Stillman injection press.

Main urea scale parts are base piece (bottom) and two housing pieces, one shown with acrylic name plate in place



TOYS

AWARD

To Kusan Incorporated

AS LONG as there are children to play with them, there will be toy blocks. But wooden ABC blocks, standard equipment in the nursery for years, have two important disadvantages. They can be decorated only with simple letters or figures of animals; and the color and outline of their decorations can be chewed off by a teething child. The introduction of plastic blocks solved the latter problem, and at the same time made it possible to have a set of blocks with a variety of background colors, although still limited to rather simple designs.

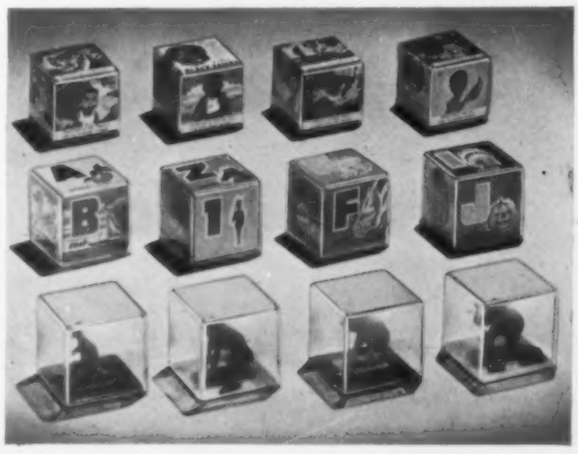
Kusan, Inc., Henderson, Ky., was making such blocks and marketing them under the name of Kusan Kubes when it decided to try a new and original idea. Plastic blocks are molded in two pieces. Five sides of the cube are molded in one piece; the sixth side, which is molded separately, is later cemented in place to complete the hollow block. Kusan decided to mold the larger piece of transparent polystyrene and to "decorate" the block by cementing a small molded figure of an animal to the opaque base.

The resultant block looks like a transparent cage with an animal in it. Kusan markets it as the Koo Zoo. A few small pieces of polystyrene are put inside each block so that it will rattle.

Transparent polystyrene is used in a different way to produce another item in the Kusan line. Five sides of the KABC Blocks are transparent, the base being opaque. The decoration is provided by colorful letters, animals, etc., printed on paper and sealed (patent pending) inside the transparent blocks. In this way Kusan can include more color and more detail than can possibly be reproduced by any method of decorating the outside surface of plastic or wooden blocks. In addition, the transparent polystyrene protects the decoration.

An interesting variation of this item is Kusan's Kiddi-Tales. Each set of six blocks tells a fairy tale and illustrates it in full color. As in the KABC Blocks, the illustrations and text are printed on paper and sealed inside transparent blocks.

Material: Dow Chemical Co., Midland, Mich.; Monsanto Chemical Co., Springfield, Mass. Molds: Chicago Impression Die & Mfg. Co., Chicago, Ill.; The Plastic Mold & Die Co., Cleveland, Ohio. Machinery: Reed-Prentice Corp., Worcester, Mass.



TOYS

AWARD

To Plastic Art Toy Corp. of America

PLASTICS, which can have details molded in, are admirably suited for making toys which look "just like the real thing." In the case of Little Homemaker doll house furniture, each piece is actually a 16 to 1 scale model of a real piece of furniture.

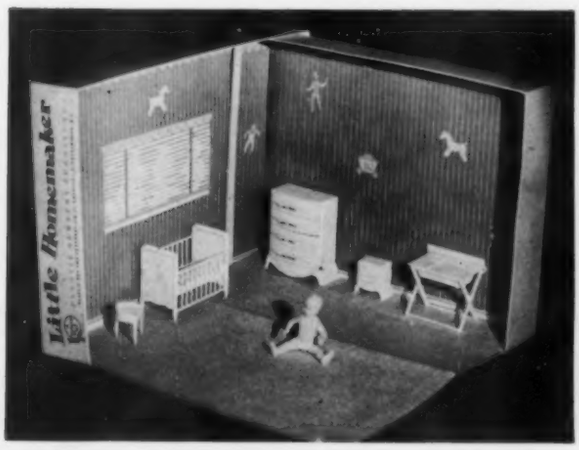
The Plastic Art Toy Corp. of America, East Rutherford, N. J., manufactures the Little Homemaker furniture and markets it in sets. The line currently includes seven sets: living room, dining room, kitchen, bedroom, bathroom, nursery, and garden.

Most of the 50 items which make up the sets are molded in a number of pieces, then cemented. Thus multi-colored items (like the garden furniture shown) are possible. The play value of the furniture is enhanced by drawers which open, crib bars which slide up and down, and other moving parts. Moving parts are assembled by snap-fits.

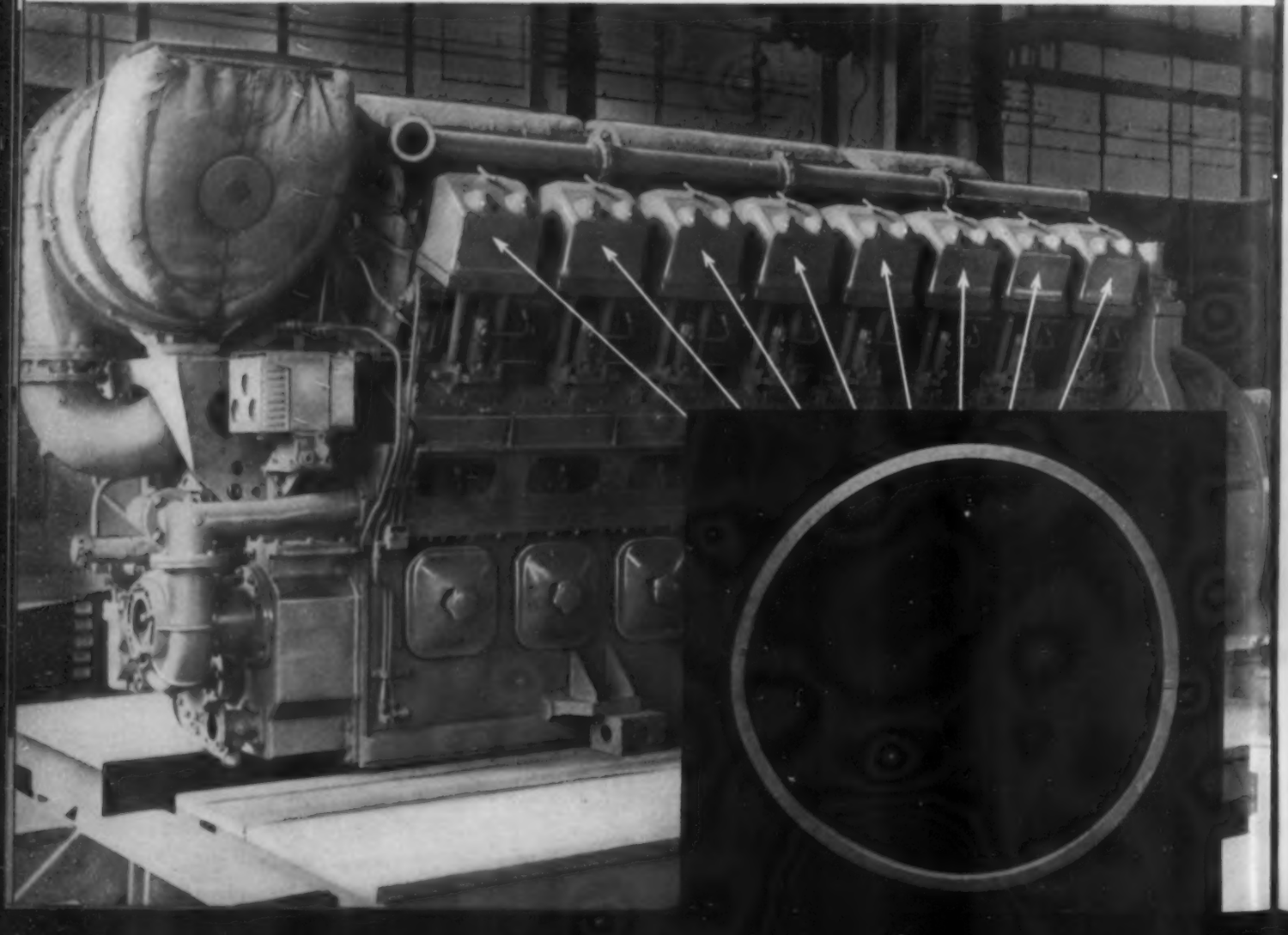
Each set is packaged in a specially designed box with a lithographed interior which simulates two walls of an appropriate room.

For more elaborate settings, the company has designed the Little Homemaker Open House, a circular doll house with transparent cellulose acetate exterior walls so that the furniture and the interior walls (lithographed like the box interiors) are open to view.

Designer: Furniture, Eugene J. Lux, New York, N. Y. Materials: polystyrene, Bakelite, Corp., New York, N. Y.; Catalin Corp. of America, New York, N. Y.; Dow Chemical Co., Midland, Mich.; Monsanto Chemical Co., Springfield, Mass.; cellulose acetate sheet, Monsanto Chemical Co. Molds: Guy P. Harvey & Son, Leominster, Mass.; Standard Tool Co., Leominster; Plastic Mold, Tool & Die Co., East Rutherford, N. J. Machinery: Reed-Prentice Corp., Worcester, Mass. Molder: Columbia Protektosite Co., Inc., Carlstadt, N. J.



SPIRIT OF M6



To American Locomotive Company

SILICONE rubber is a highly important component of the Diesel-electric locomotive manufactured jointly by the American Locomotive Co. and the General Electric Co. This man-made rubber helped make the installation of a supercharger satisfactory and, as a result, the designers were able to increase the horsepower rating of the engine.

Silicone gaskets of rectangular cross section are being used at each cylinder head of the engine and one additional gasket of circular cross section near the turbocharger. Silicone rubber was specified for the rectangular section gaskets from the very beginning of the design work.

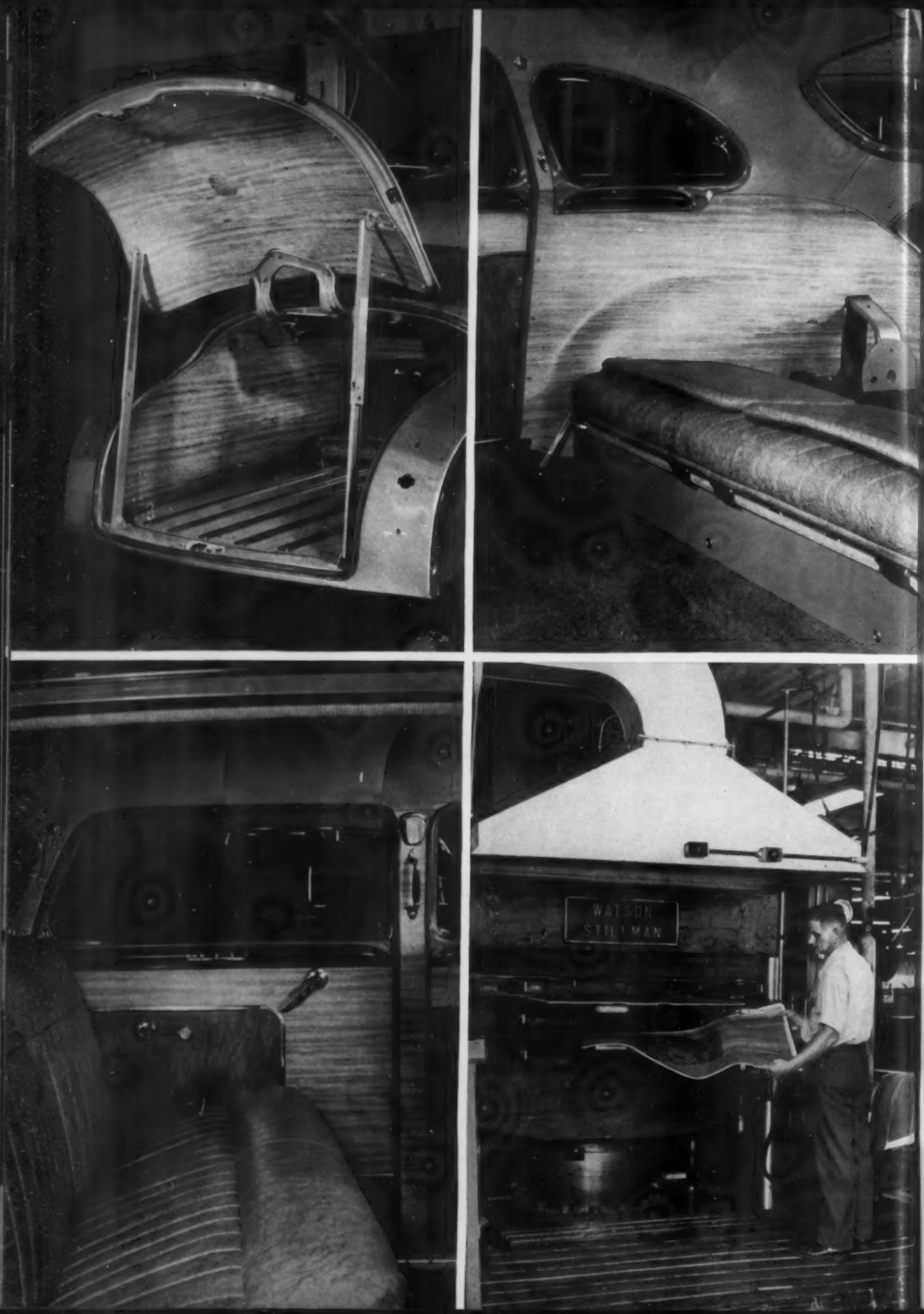
That particular gasket must make a seal between two flanges which have a gap that varies from 1/32 to 1/16 inch from one cylinder head to another. This variation of dimension is due to a "piling up" of machining tolerances for numerous metal parts. The flexibility and compression set of the material compensate for this variation. The gasket must seal air at 15 p.s.i. and withstand temperatures up to 300° F.

The circumstances surrounding the specification of silicone for the gasket used at the turbocharger were somewhat different from the first. A synthetic rubber ring was tried but deteriorated rapidly at the temperatures encountered. This was replaced by an asbestos packing. The use of asbestos, however, was unsatisfactory because of high assembly time and the necessity for repacking due to leaks. Since a silicone rubber gasket was simple to assemble and made absolutely tight assemblies, American Locomotive felt that the higher cost of the silicone was justified.

Each of these gaskets is molded in a six-cavity compression mold under pressure of 250 p.s.i. The mold is held at a temperature of 150° C. for a period of five minutes, after which the mold is cooled for seven minutes before the part is removed. There is an after-cure of 48 hours at 200° C.

Sixteen gaskets of rectangular cross section are used for each engine. Their approximate location is indicated on the opposite page by the arrows drawn to each section of the manifold.

Material: Silicone rubber supplied and molded by Plastics Div., Chemical Dept., General Electric Co., Pittsfield, Mass.


WATSON
STILLMAN

To Briggs Manufacturing Company

USE of plastic laminates for interior panels in the DeSoto Suburban, a luxury station wagon type of car, has met the test of two years of quantity production and usage by thousands of car owners throughout the United States. During that time there have been no major complaints from the field, which is the ultimate test of any new automotive development. Complete details of the production process appeared in MODERN PLASTICS for January 1947.

The Briggs Manufacturing Co., Detroit, Mich., which manufactures and installs these laminated interior panels in the Suburban bodies, has not found it necessary to make any major improvements in the process since production began in 1946, according to A. W. Prance, director of design-research. Four door panels, two rear quarter panels, a rear deck, and two center pillar panels are produced for each car. Decorative wood grain effects are achieved by the use of actual wood grain for reproduction on the printing plates. The richness, depth, and texture of the wood is realistically duplicated.

In order to make the manufacturing process more efficient, a 900-ton multiple platen press has been installed for curing the phenolic resin impregnated paper sandwich. The sandwich is cured by steam at a temperature of 350° F. on a 1½-min. cycle. Timing is automatic.

Panels for the rear deck lid and rear quarter panel sections must be formed to shape. The hot sheets are taken from the press and placed in a simple forming die while still hot. This is composed of a wooden male form making up the lower half of the forming die and a skeleton framework of angle iron for the upper half.

This type of forming die was relatively inexpensive to build but there was doubt in some minds about its durability. However, it still is in use after two years and apparently good for some months more. The die cost in this particular case would have been 80 times greater if a steel die had been necessary.

Materials: Paper, Hurlbut Paper Co., South Lee, Mass., Rayonier Paper Co., New York, N. Y., and Wrenn Paper Co., Middletown, Ohio; resin, Bakelite Corp., New York, N. Y.; Catalin Corp. of America, New York, N. Y.; and Reichhold Chemicals, Inc., Ferndale, Mich. Machinery: Watson-Stillman Co., Roselle, N. J.

Third National Plastics Exposition

THE Third National Plastics Exposition will be held in Grand Central Palace, New York, from September 27 to October 1, inclusive, under the sponsorship of the Society of the Plastics Industry, Inc. The show is being planned to emphasize the recent strides made by the plastics industry in a wide number of fields, and the industry's possibilities for future growth.

Over one hundred companies will be exhibiting plastic materials, machinery, and end products molded, fabricated, or laminated of plastic. In addition to representatives of the entire plastics industry, visitors will include manufacturers of various products who use plastics, buyers and other executives from chain stores, jobbers, designers, architects, builders, decorators, and government personnel. The show will be restricted to the trade, and the general public will not be admitted.

The show will undoubtedly be one of the industry's most outstanding public-relations efforts.

List of Exhibitors*

Acme Scientific Co.

Booth 331. *Exhibit:* "Super-polished" molds.

Representatives: Joseph Dauber, Emil J. Marslek, Adam Gabriel, A. M. Steelhammer, Herman Schumann, Verne Hudson.

American Cyanamid Co.

Booths 62, 63. *Exhibit:* Melmac molding compounds, adhesives, and laminating resins; Beetle molding materials; resin adhesives; Laminac polyester resins; surface coating resins; baking enamels; resins for the production of wet strength paper; textile resins; coloring agents used in the plastics industry.

Representatives: W. H. MacHale, J. R. Marshall, T. Wennergren, H. W. Cyphers, N. C. Martin, G. Rice, E. V. Michal, J. Blais, C. W. Johnson.

American Insulator Corp.

Booth 8. *Exhibit:* Thermoplastic and thermosetting molded parts; cold molded parts.

Representative: Lewis T. Harrower, Barto Attig.

Amos Molded Plastics

Booth 286. *Exhibit:* Injection molded plastic parts.

Representatives: J. C. Kazimier, Robert Dailey, Palmer Skoglund, H. D. Schmidt.

Anchor Plastics Co.

Booths 255, 256. *Exhibit:* Extruded thermoplastics.

Representatives: Richard A. Fisch, Myron Rothman, Jay Shapiro, Hilde Fisch, Rose Jacobs, Gertrude Schoor, Blanche Wind, Franklin Dick.

Art Roll Leaf Stamping Co.

Booth 324.

Avery Adhesive Label Corp.

Booths 301, 302.

Aviatrix Co.

Booth 323.

Bakelite Corp.

Booths 20, 21, 22. *Exhibit:* Bakelite and Vinylite molding materials; bonding materials; coatings; adhesives; film and sheeting; extrusion materials; calendering materials.

Representatives: Members of Sales Engineering Department.

Bee Chemical Co.

Booth 288. *Exhibit:* Logoquant treatment for polystyrene.

Representatives: M. A. Self, E. L. Britt.

The Borden Co., Chemical Div.

Booths 333, 334. *Exhibit:* Products made with Durite molding compounds; allied Chemical Division products.

Representative: E. E. Novotny.

Catalin Corp. of America

Booths 18, 19. *Exhibit:* Products produced from Catalin cast phenolics, Catalin Polystyrene molding powders, and Catalin liquid resins.

Representatives: H. B. Dundon, M. S. G. Buckbee, E. F. Joyce, W. Sheppard, R. Blake, W. Dillon, V. Moss, E. S. Horsman, F. E. Hadley, W. M. Hupfel, E. Bastian, J. Connolly, T. S. Norman, B. Olmsted.

Celanese Corp. of America

Booths 76, 77. *Exhibit:* Latest products made of Celanese plastics; new formulations.

Representatives: W. S. Landes, E. W. Ward, D. S. Hopping, J. J. Keville, Harriet Raymond, E. H. Miller, W. K. Woodruff, K. W. Kithil, R. S. Gavitt, S. W. Jones, Jr., W. R. Porter, F. F. Sanford, W. F. Collum, W. R. Poucher, W. M. Porter, C. H. Edgar, Millard Demarest, Oscar Bunting, William Kraft, Charles Litz, Dan Sullivan, A. V. Tiano, J. M. Voegtlin, S. S. Bareford, J. Growley, W. Browning, E. M. Leiter, R. Bareford, H. Costa, C. M. Reynolds, A. Gelderman, J. Moore, R. C. Cory, B. Nelson, U. S. Avery, R. K. Thomson.

*As of August 12, 1948.

Chicopee Mfg. Corp.

Booth 94. *Exhibit:* Lumite insect screen cloth; Lumite woven plastic upholstery fabric; Lumite woven plastic industrial fabric.

Representatives: J. F. Nicholl, G. H. Day II, J. F. Rohs, H. W. Hastings, J. W. Veeder.

Geo. V. Clark Co., Inc.

Booth 86.

The Cleveland Container Co.

Booth 220. *Exhibit:* Clevelon injection molding material; Cosmalite paper base phenolic tubing.

Representatives: J. Ritter, G. W. Mulder, W. F. Walker, A. J. Simmons.

Cleworth Publishing Co.

Booth A. *Exhibit: Plastics World; Plastics News Letter; The Plastics Buyer;* books of all publishers.

Representatives: C. Wm. Cleworth, George W. Rhine, William B. Cowilich, W. Paul Pincher, Dudley B. Trott, O. A. Feldon, Florence Benedict.

Columbia Protektosite Co., Inc.

Booth 46.

Representatives: J. J. Brunetti, V. Buckley, J. A. Jackovics, S. A. Bell, J. Mazza.

Columbus Plastics Products, Inc.

Booths 83, 84.

Creative Plastics Corp.

Booth 74.

Cruver Mfg. Co.

Booth 32. *Exhibit:* Molded plastic products; scale models; plastic playing cards.

Representatives: C. L. Cruver, Jr., J. H. DeSobe, H. Farber, S. Linder.

Defiance Machine Works, Inc.

Booth 73. *Exhibit:* Tri-Dyne molding press; 75-ton plastic preform press; other plastic machinery.

Representatives: George P. Anderson, K. W. Hall, F. J. Seibert, Jr., H. D. Bennett, H. J. Lee, W. L. Phyfe, R. M. Hamada, C. B. Smith, W. F. Broer.

Distillation Products, Inc., Vacuum Equipment Div.

Booth 215.

The Dow Chemical Co.

Booths 70, 71. *Exhibit:* Styron molded products and the merchandising of those products.

Representatives: D. L. Gibb, W. R. Dixon, C. F. Cummins, A. L. Ruddock, C. F. Shoemaker, Gage Olcott, C. J. Burkmaier, T. W. Simmon, R. L. Palmenter, E. R. Haines, T. M. Jensen, F. J. Gunn, E. E. Chamberlain, J. R. Agurkin.

The Drackett Co.

Booth 289. *Exhibit:* Drackett phenolic impact molding compounds and preforms.

Representatives: H. N. VanDuyne, Paul Bury, John David, Robert Wise, Ben Bain, A. H. Boylan.

E. I. du Pont de Nemours & Co., Inc.

Booth 7. *Exhibit:* Applications of Nylon, Lucite, Polythene, and Teflon; information about properties of Plastacele, Pyralin, Butacite, Strux, and BCM.

Representatives: L. B. Gillie, E. J. Pechin, P. W. Crane, M. M. Taylor, W. D. Maginnes, E. H. Tyson, D. G. Fertman, R. T. Teetsel, A. A. Hankin.

Durez Plastics & Chemicals, Inc.

Booths 10, 11, 12. *Exhibit:* Phenolic molding compounds and resins.

Representatives: E. F. Borro, L. J. Pentland, R. W. Bainbridge, J. F. Ortner, A. W. Hammer, Jr., R. E. Dodd, C. T. O'Connor, H. W. Kellogg, M. G. Dubenitz, A. R. Schuster, H. S. Spencer, C. R. Simmons, J. C. Cassidy, Jr., G. W. Wilcox.

Elmes Engineering Works, American Steel Foundries

Booth 53. *Exhibit:* 1000-ton hobbing press; 30-ton laboratory press; 30-ton Hydrolair; 50-ton Hydrolair.

Representatives: J. E. Bush, R. E. Reynolds, S. B. Perlitsch, C. F. Elmes, J. Heatter, E. Cannon, J. W. Tomka.

Erie Resistor Corp.

Booth 89. *Exhibit:* Molded and three-dimensional plastic parts.

Representatives: W. C. Conroy, S. W. Duncan, J. Kilfoil, D. Washabaugh.

Farley & Loetscher Mfg. Co.

Booth 280. *Exhibit:* Dinette tops; restaurant tops; laminated decorative sheets; laminated industrial sheets; kitchen cabinets with plastic doors and drawer fronts.

Representatives: Fred R. Loetscher, C. E. Walz, L. E. Blichmann, R. J. O'Brien, J. C. Ellwanger.

The Fellows Gear Shaper Co.

Booths 44A, 45. *Exhibit:* New injection molding machine.

Representatives: H. B. Flinn, F. C. Means, W. H. Fellows, H. W. Nickerson, C. W. Burnham, A. F. Cossette, C. E. Buote.

Flexton Corp.

Booth 235.

The Formica Co.

Booth 36. *Exhibit:* Moonglo, a new Formica decorative pattern; industrial Formica; a new post-forming development.

Representatives: D. J. O'Conor, Jr., G. H. Clark, Fred Walter, R. T. MacAllister, T. A. Allen, L. J. Francisco, J. R. White, Ted Brown, Sprague Mullikan.

G. M. C. Process Corp.

Booth 251. *Exhibit:* Plastic articles decorated with silver deposit.

Representatives: Joseph Markoe, William Castle, Joseph Garofano, Richard Markoe, James Garofano, Patrick Garofano.

General American Transportation Corp.

Booth 90. *Exhibit:* Inside fittings for refrigerators; large housings for scales; tableware; molded plastic chair; Vinylite drapes.

Representatives: A. N. Williams,

Harry Jenkins, James H. O'Connell.

General Electric Co., Chemical Dept.

Booths 43, 44B. *Exhibit:* Plastics design, engineering, mold building, and molding services.

Representatives: D. S. McKenzie, N. A. Frenden, S. H. Thomas, R. L. Gibson.

Giddings & Lewis Machine Tool Co.

Booths 13, 14. *Exhibit:* Two new vertical plastic injection molding machines.

Representatives: R. J. Kraut, E. K. Morgan, D. M. Laflin, Wm. S. Renier, W. E. Rutz, S. L. Little, Ira P. Mabie, A. E. Ulrich, H. S. Peters, L. L. Peeke, Henry S. Faith, Thomas Ford, Joseph Borres, Frank Kraus, Edward Pasco, T. E. Lorenz, John Schwarz.

B. F. Goodrich Chemical Co.

Booths 50, 51. *Exhibit:* Geon polyvinyl chloride resins, plastics, and latices; Geon paste forming resins; Geon polyblend; Geon polyblend latex; Geon latex 31X.

Representatives: R. F. Dettelbach, H. L. Wuerth, H. F. Engler, J. E. Pittenger, R. H. Williams, G. A. Fowles.

The Goodyear Tire & Rubber Co., Inc.

Booth 42. *Exhibit:* Tuf-Lite high impact strength compounds; Pliovic high molecular weight vinyl copolymer.

Representatives: H. R. Thies, W. H. Aiken, R. S. Earhart, R. S. Sanders, W. C. Kirschner, H. C. White, E. J. Hill, R. T. Hickcox, C. O. McNeer, D. E. Neese, J. M. Hussey, J. W. Bear, R. E. Workman.

The Grigoleit Co.

Booth 80. *Exhibit:* Plastic products for the gas and electric range industries, appliance industries, and cooking ware industries.

Representatives: E. L. Shepherd, Fred W. Sobottka, R. V. Bergren, J. Callahan, F. Campbell.

Haas Laminator Corp.

Booth 250.

Harte & Co.

Booth 28.

The Harwid Co.

Booth 268.

Hemco Plastics Div., The Bryant Electric Co.

Booth 232.

Hercules Powder Co.

Booths 38, 39. *Exhibit:* Products made of cellulose acetate, ethyl cellulose, and cellulose nitrate.

Representatives: Members of Cellulose Department.

Heribert, Inc.

Booths 60, 61. *Exhibit:* Silkysol coated fabrics; Silcyl coated Fiberglas; Heribex vinyl films; Heribol inks.

Representatives: S. L. Fox, Joseph P. Gabriel.

The Hopp Press, Inc.

Booth 332. *Exhibit:* Extruded plastic items, such as fountain, pen tubing, refrigerator breaker strips, and pearl rod; printed and laminated plastics.

Representatives: George Hopp, Sam Held, Louis Posner, Ed Autler.

E. F. Houghton & Co.

Booth 23A.

The Hydraulic Press Mfg. Co.

Booths 48, 49. *Exhibit:* Molding machinery.

Representatives: Howard M. Hubbard, Paul C. Pocock, Warren R. Tucker, H. J. Miller, C. J. Ziegfeld, Don Barkhurst, R. W. Powell, C. P. Terry, Robert Davis, P. J. Lindner.

Imperial Chemical & Plastics Corp.

Booth 315.

Industrial Synthetics Corp.

Booths 56, 57. *Exhibit:* Extruded Elastron tapes, tubes and shapes; Elastron ladies' belts, men's belts, and watch straps; clothesline; Supplex garden hose.

Representatives: Albert A. Kaufman, Katherine Genereux, M. Robert Lustgarten, Charles Ehrlich.

Interchemical Corp.

Booth. 23. *Exhibit:* Chemical coatings.

Representatives: Chester M. Robbins, Charles W. Scott, A. Todd Selbert, Samual A. Moore, John P. Duane.

Inter-State Products Co.

Booth 249. *Exhibit:* Plated plastics and metals; plastic mirrors; plastic fountain pens.

Representatives: George Cohen, Bernard Cohen, Louis A. Levy, Louis Cohen.

Keyes Fibre Sales Corp.

Booth 41. *Exhibit:* Tableware; serving trays; high chair trays; window sill tracks; cup holders; magneto covers; radio cabinets.

Representatives: H. D. Archibald, W. W. Jackson, Robert L. Smith, R. H. Chittick, David Dunn, Jack Barrett, Edw. Spanko, C. Lindeberg.

Koppers Co., Inc.

Booths 78, 79. *Exhibit:* Polystyrene, cellulose acetate, and ethyl cellulose molding materials; Penacolite resins and adhesives.

Representatives: D. M. Rugg, T. C. Keeling, Jr., H. W. Harding, G. Thiessen, D. J. Hanchett, B. L. Swick, E. Y. Wolford, G. D. Bieber, R. C. Whitman, J. W. LaBelle, J. A. Roberts, M. D. Fullerton, Durbin Hunter, F. Foy, G. H. Kent, W. M. Preston, R. E. Hartung, A. A. Staff, L. J. Diamond, W. J. A. Connor, M. Colburn Baily, C. J. Snyder, W. J. Mock.

Kurz-Kasch, Inc.

Booth 342. *Exhibit:* Standard and custom molded parts.

Representatives: J. J. Bauman, Roy H. Dean, R. L. Davidson, Adolph Friedman, Jules Sussman, Harold Melloy, George E. Mohr.

W. T. LaRose & Associates, Inc.

Booth 47. *Exhibit:* Thermall elec-

tronic plastics preheaters; Thermall electronic heat sealers; Thermall electronic rubber heating units.

Representatives: W. T. LaRose, J. L. Stratton, J. Moore, S. T. Miles, J. E. McCabe, S. R. Woolsey, C. L. Barringer, K. C. Carter, J. P. Moran, D. Harrington, V. S. Wagner, B. Singer, C. C. Tiedman, G. H. Schliecker, L. H. Schliecker.

Leiske Machine Co.

Booth 237.

Lester-Phoenix, Inc.

Booths 58, 59. *Exhibit:* Lester injection molding machines.

Representatives: Nathan Lester, David White, Wm. Schwartz, David Sloane, W. J. Hennessy, E. Maywald, F. Mayer, H. Wright, B. Gibson, H. E. Bollinger, H. Jeck, A. Moll, R. H. Priest, M. Marine, H. Chase, T. Gade, A. B. Geers, J. Geers, S. Krould, E. C. Mast, R. Johnson, R. Grobel, J. Kavanaugh, L. Kavanaugh.

Livingstone Engineering Co.

Booth 285. *Exhibit:* Series 700 Balanced Control Speedylectric Boilers; pre-heating oven.

Representatives: F. J. Riker, Stanley Livingstone, Bradley Higgins, Oliver Stalter.

Machine Design Magazine

Booth 328. *Exhibit: Machine Design;* technical books.

Representatives: L. E. Jermy, J. W. Greve, J. C. Gernhard, H. H. Dreyer, R. H. Smith, E. S. Lawson, H. B. Veith.

Mack Molding Co., Inc.

Booth 72. *Exhibit:* Various custom molded and proprietary parts made of thermosetting and thermoplastic materials.

Representatives: K. W. Macksey, S. I. Howell, D. S. Kendall, J. McIntosh, W. B. Wallace, E. A. Jeffreys, R. H. Hoonhout, R. H. Hoehn, N. E. Raymond, S. J. Helsper.

Macray Engineering Corp.

Booth 296.

The Glenn L. Martin Co., Chemicals Div.

Booths 224, 225. *Exhibit:* End products fabricated of Marvinol VR-10 resin.

Representatives: Harry M. Parsekian, Wesley S. Thurston, Walter W. Peacock, Jr., W. deCamp Crater.

Mayflower Machine & Tool Co.

Booths 292, 293. *Exhibit:* Electronic sewing machines and bar welding equipment.

Representatives: Jack Stewart, Jack Duncan, E. F. Stevens, R. Cummings, Edward J. Wohlfarth.

The McCathron Boiler Works Co.

Booth 340. *Exhibit:* Steam pre-form conditioner.

Representatives: E. H. McCathron, W. F. McCathron.

The Meyercord Co.

Booth 277. *Exhibit:* plastic and vinyl decals.

Representatives: Don Stockburger, Ralph Thomas, W. A. Rapp.

The Miskella Infra-Red Co.

Booth 37. *Exhibit:* Continuously operating preheating equipment.

Representatives: Wm. J. Miskella, Grace Miskella, John Hanson, Roy Sloan.

Modern Plastic Machinery Corp.

Booths 265, 266. *Exhibit:* 2½-in. extruder; 1½-in. extruder; conveyor; granulator.

Representatives: William Willert, Albert Kudlach, Edward Tanis, Hank Tornberg, W. J. Johnson.

Modern Plastics, Inc.

Booths 30, 31. *Exhibit:* Modern Plastics Magazine; 1948 Modern Plastics Encyclopedia.

Representatives: Charles A. Breskin, Alan S. Cole, Hiram McCann, J. M. Connors, P. H. Backstrom, R. C. Beggs, M. A. Olsen, Burton W. Gussow, Joseph A. Drucker, W. F. Kennedy, A. Paul Peck, Gordon M. Kline, Fred B. Stanley, R. L. Van Boskirk, Warren H. Goodman, Stuart Siegel, Theodore B. Breskin.

Monsanto Chemical Co.

Booths 91, 92. *Exhibit:* Finished articles made of Monsanto's twelve basic plastics; fabricated plastics packages; molded containers.

Representatives: F. N. Williams, F. A. Abbiati, J. R. Turnbull, C. Lichtenberg, Ed. Kennedy, E. S. Bauer, J. C. Brunner, A. W. Dunning, R. G. Fordyce, C. F. Graesser, R. F. Hansen, E. L. Hobson, S. L. King, T. S. Lawton, F. W. Meuschke, D. S. Plumb, R. C. Evans, C. F. Reeves, C. L. Richards, J. G. Zack.

Moslo Machinery Co.

Booth 202.

Myler Plastics

Booths 273, 274.

National Rubber Machinery Co.

Booth 304. *Exhibit:* Plastics extrusion equipment.

Representatives: H. E. Buecken, L. G. Turk, D. V. Blatter.

National Tool & Mfg. Co.

Booths 343, 344, 345, 346.

Exhibit: Injection, stripper plate, and compression mold sets; mold accessories; machining service; standard steam platens; grinding service.

Representatives: Egon Steuer, Bela B. Lukacs. Ralph Morin, A. J. Palme. William Zeus.

New Hermes Engraving Machine Corp.

Booth 226. *Exhibit:* Portable engraving machine.

Representatives: J. Jaffe, H. Susskind, N. Schimmel, W. Dannheisser, P. Kahn.

Nixon Nitration Works

Booths 26, 27. *Exhibit:* Materials made from cellulose nitrate, cellulose acetate, and ethyl cellulose sheets, rods, tubes, and molding compounds. (*Turn to next page*)

Representatives: M. Breitkopf, W. A. Olsen, M. W. Peters, W. B. Savage, G. L. Lotz, K. P. Whiting, W. G. Tucker, C. E. O'Neal.

Northern Industrial Chemical Co.

Booth 327. *Exhibit:* Ethyl cellulose bowling pins; various molded parts.

Representatives: H. H. Wanders, F. Reed Estabrook, Jr., F. C. Meacham.

Nutmeg Chrome Corp.

Booth 287. *Exhibit:* Molds and plastic parts.

Representatives: Arthur W. Logozzo, Henry F. Cummings, Sylvia Fontanella.

Omni Products Corp.

Booth 81. *Representatives:* Tino Perutz, Walter Geber, Jaume M. Ribas, Robert Ernst, F. M. Gottheimer.

Owens-Corning Fiberglas Corp.

Booths 34, 35. *Exhibit:* Fiberglas cloths, mats, yarns, and fibers used as reinforcements for plastics.

Representatives: Ben S. Wright, J. F. Skillman, F. T. Moore, G. K. Hammond, R. J. Savage, C. D. Jones, Robert Griffith, Saul Fingerhut, P. J. Fluge, M. W. Butler, W. F. Condon, C. H. Soderberg, W. R. Thomas, R. K. Biggers, W. R. Sykes, Ludlow King, W. E. Pierce.

Peabody Plastic Products, Inc.

Booths 283, 284. *Exhibit:* Plastic sheeting material; Fabronized Plaspro; suede plastic for the handbag trade; Glamour-gator.

Representatives: John A. Bick, Melvin J. Edinberg, Horace Strauss, Jerry Phillips, Norman Wile, Paul Grant, B. Renalde, Leo Byette, O. L. Moos.

Peerless Roll Leaf Co., Inc.

Booth 282. *Exhibit:* Roll leaf stamping presses.

Representatives: C. A. Lydecker, John Muller, E. L. Donahoe, P. F. Cullen, D. B. Tarshis, F. H. Young, L. X. Boylan, R. H. Acker, A. A. Morse, W. F. Grupe, L. S. Simmonds, C. A. Deland.

Plaskon Div., Libbey-Owens-Ford Glass Co.

Booths 54, 55. *Exhibit:* Various items molded of Plaskon urea and melamine formaldehyde molding compounds; a new molding compound.

Representatives: W. W. Knight, Jr., Horton Spitzer, W. N. Shepard, M. A. Brown, George A. Taylor, E. W. Hicks, C. B. Wing, R. M. McGee, P. F. Huidekoper, Alferd Egerter, H. E. Murray, M. H. Bigelow.

Plastic Processing Co.

Booth 257. *Exhibit:* Moniker cigarette personalizer; Sanitop milk bottle cap; fish lure; windshield ice scraper; sandwich toothpick; Line Master fishing line dryer and waxer; new 8-oz. injection molding press.

Representatives: Clare Crawford, Joel Graves, John Kaczmarczyk, Jack Kapowitz, Harold Friedman, Edward M. Werbe, Mrs. Louis A. Werbe, Josetta Wilcox.

Plastic Welding Corp.

Booth 264.

Plastics Industries Technical Institute

Booth 227.

Plastics Technical School of America

Booth 252.

Plax Corp.-Shaw Insulator Co.

Booth 67. *Exhibit:* Extruded sheet, rod, tubing, and special shapes.

Representatives: Henry E. Griffith, James Q. Burgess, Wm. Bolton, Wm. F. Ebling, E. S. Marsh.

Presto Plastic Products Co., Inc.

Booth 279. *Exhibit:* Prestoflex vinyl film.

Representative: Paul Hirschl.

Prolon Plastics Div., Pro-phy-lactic Brush Co.

Booth 9. *Exhibit:* Exide aircraft battery; large injection moldings; compression molded parts.

Radio Receptor Co., Inc.

Booth 40. *Exhibit:* Thermatron electronic high frequency generator, sealing press, and electrodes; electronically sealed toys, balls, surf rings, and utility items.

Representatives: John Malcolm Torr, Ivan Hilton Schwartz, Ethel Zitser, Harold N. Krongold, William Selwyn, Herbert Tansker, Walter H. Sparf.

Reed-Prentice Corp.

Booths 2, 3, 4. *Exhibit:* Injection molding machines.

Representatives: F. W. McIntyre Sr., F. W. McIntyre Jr., George W. McIntyre, A. R. McIntyre, Watson O. Elliott.

Regal Plastic Co.

Booth 312. *Exhibit:* Transparent washing machine tub; plastic signs; plastic miniature kitchens; transparent plastic merchandising aids; serving trays; various parts draw-formed of Versalite; plastic juke box parts.

Representatives: J. S. Kivett, Homer I. Benson, Charles L. Dwinell.

Reichhold Chemicals, Inc.

Booths 64, 65. *Exhibit:* Applications of Plyophen and Beckamine resins.

Representatives: A. Bokenko, H. Kline, D. W. McArthur, F. A. Smiles, J. C. Smith, R. W. Thuemmler, F. G. Towne, W. E. Wanstall.

Reinhold Publishing Corp.

Booth 52. *Exhibit: Materials & Methods;* plastics books, and other technical books.

Representatives: W. P. Winsor, Fred P. Peters, T. C. DuMond, Kenneth Rose, H. R. Clauser, A. E. Fountain, F. J. McKinley, M. R. Long, F. E. Schmitt, F. M. Turner, Joseph McKible, Stanley A. Sweet, G. G. Hawley.

Respro, Inc.

Booths 16, 17. *Exhibit:* Resproid material.

Representatives: Nathan Cohen, Louis Schrenzel, Albert Hart, K. G. Mooney, R. S. Newell, J. E. Manion, Ralph A. Nelson, William Falencki, M. Feinstein, J. C.

Mooney, A. J. Hanley, F. R. Fitzpatrick, W. H. Young, Jr.

The Richelieu Corp.

Booth 326. *Exhibit:* Irilite, a new iridescent plastic for fabrication.

Representative: Jos. Lenson.

Rohm & Haas Co.

Booths 68, 69. *Exhibit:* Corrugated Plexiglas panels and screens; new lighting developments making use of Plexiglas coffer panels; showcases and displays.

Representatives: D. A. Rothrock, D. S. Plume, J. P. Rhein, R. F. Berentsen, S. J. Zarger, D. T. Brophy, R. D. Pillsbury, F. W. Tetzlaff, N. G. Wedemeyer.

Rubber Corp. of America

Booths 230, 231. *Exhibit:* Plastic sheeting.

Representatives: D. W. Hoover, Al Hirsch, Robert D. Hurtig, Fred Stoyles.

Santay Corp.

Booths 335, 336. *Exhibit:* Current molded parts; polystrene dials, radio cabinets, and air conditioning components.

Representatives: Daniel Szantay, Earl R. Keown, John H. Deer, Edward Edmunds.

Saval Inc.

Booth 291.

Singer Sewing Machine Co.

Booths 307, 308, 309. *Exhibit:* Singer Electronic Seamers.

Representatives: H. C. Morehouse, Cole Ray, C. P. Sweeny, H. G. Klawunn, O. B. Reid, R. M. Thiel, R. G. Musgrave, P. G. Rice, R. H. Fuhrer.

Stanley Sapery Co.

Booths 253, 254. *Exhibit:* Molded and fabricated plastics packages and displays.

Representatives: Joseph J. Eder, William Hogenson, Jr., Leo Adenbaum, Alex Adenbaum, Dick Adenbaum, Paul Winter, Sam Silberkraus, Arthur Basson, Murray Martin, Clif Cowan, Al Sierad, Jay Darling, Stanley Sapery.

Steiner Mfg. Co.

Booths 24A, 25. *Exhibit:* Fabricated acrylic items.

Representatives: Malcolm Steiner, Mark L. Steiner, Francis M. Bernstein, Henry L. Stauffer, Walter R. Speck, Daniel MacAlpine, Natalie Orange, Alice Berger.

W. L. Stensgaard and Associates, Inc.

Booth 33.

F. J. Stokes Machine Co.

Booths 87, 88. *Exhibit:* 50-ton fully automatic compression molding press; 50-ton plunger press with companion preforming press; plastic preform presses.

Representatives: E. S. Walker, A. A. Hutchings, John Currier, Robert Platt, Richard Strong, Samuel Bradbury, John A. Silver, Richard Kimber, John Meyer, David Stokes, MacLean Brown.

Surprenant Electrical Insulation Co.

Booth 1. *Exhibit:* Plastic wire and cable; plastic tubing; Surcowelt; Surflex plaiting; plastic tile.

Representatives: George E. Forsberg; Donald Alexander.

Synthane Corp.

Booths 203, 204. *Exhibit:* Laminated phenolic materials in the form of sheets, rods, tubes, and fabricated items; laminated molded parts; macerated molded parts.

Representatives: R. R. Titus, J. B. Rittenhouse, Herbert Widdop, J. Morris Price, M. B. Firehock, N. P. Harvey, R. B. Galloway, E. E. Smith.

Tennessee Eastman Corp.

Booths 5, 6. *Exhibit:* Tenite I cellulose acetate and Tenite II cellulose acetate butyrate molding compositions; Tenite sheet; Tenite-coated steel tubing; boxes formed from sheet material.

Representatives: J. T. Bent, N. R. Berini, W. P. Bussart, G. W. Carpenter, E. C. Cathcart, W. F. Cooper, Jr., C. B. Fox, Jr., W. R. Groover, J. T. Moore, R. R. Moore, H. M. McDaniel, H. D. Oliver, Jr., S. E. Palmer, J. R. Pecktal, I. W. Resseguie, W. L. Searles, J. G. Slater, D. C. Williams, J. B. Williams, J. H. Dukes.

Thermoplastic Fabrics Corp.

Booth 303.

Toscony Fabrics, Inc.

Booths 310, 311.

Union Special Machine Co.

Booths 337, 338. *Exhibit:* Electronic seaming machine.

Representatives: R. Hayes, W. G. Booth, A. J. Feigel, Wm. Bleicher.

U. S. Navy, Bureau of Ships

Booths 245, 246, 247, 248.

The Van Dorn Iron Works Co.

Booth 82. *Exhibit:* Model H-200 plastics injection press; Van Dorn Barrel Tumbler.

Representatives: Joseph J. Reichel, Howard McNash, Jack Vinmont, Carl Keller, Earl Jaynes.

The Watson-Stillman Co.

Booth 75. *Exhibit:* Improved heating cylinder for injection molding machines; equipment for injection, compression and transfer molding hobbing, laminating, and tableting; 30-ton transfer molding machine; 10-ton high speed hydraulic tableting press.

Representatives: A. G. York, J. S. Wilson, H. E. Elliott, J. T. Gillespie, Jr., A. M. Hekking, C. Huizing, R. W. Schreck, F. G. Helander, R. Fehr, R. York.

Westinghouse Electric Corp.

Booth 15. *Exhibit:* Industrial and decorative Micarta panels and specialty products; spinning buckets and other items for the textile industry; steel mill and marine bearings; pulleys and timing gears; Micarta radio cabinet.

Representatives: J. E. Callahan, L. A. Pedley, A. J. Bastion, F. P. Hunsicker, M. R. Stokes.

Yardley Plastics Co.

Booth 58. *Exhibit:* Plastic extrusions; fabricated tubing; injection molded products; plastic wall tile.

Representatives: Charles A. Ebner, R. W. Rosel, James M. Savage, Roy A. Smith.

The largest hobbing press in the plastics industry

now producing:

Hobbed Cavities *by* Midland . . .

An important addition to Midland's expanding facilities is this 8000 ton hobbing press, the largest of its kind in the plastics industry.

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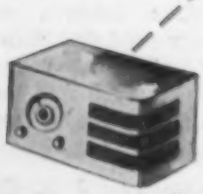
With this press, Midland is prepared to supply plastic molders with hobbed cavities for large plastic parts including radio cabinets, large container escutcheons and instrument housings. Multiple cavities can be hobbed . . . "like peas in a pod" . . . quickly, with complete uniformity and accuracy. Multiple cavities will speed up your production with a minimum of expense.

Midland experience and facilities, in addition to skilled craftsmen, are ready to serve you . . . to produce the finest and deliver on time when you specify "Hobbed Cavities by Midland."

Write for your copy of "How to Heat Treat Hobbed Cavities," a practical heat treating treatise to help you get the best performance from Hobbed Cavities by Midland.



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Dimensional Control in Extruded Tubing

by G. JARGSTORFF and C. JOSLIN†

The extrusion of thin walled plastic tubing to close dimensional tolerance has been a major problem to all skilled extrusion technicians. Inasmuch as no process has been publicly disclosed for forming such tubing, it was deemed advisable to devote considerable time to the development of both equipment and technique for forming tubing having the desired geometry.

After considerable research, such a process for the extrusion of thin walled tubing to accurately controlled thickness and diameter was developed. The process involves the use of the usual extrusion die to which is attached a cooling die, the bore of which is etched to a matte surface. The process has made it possible to extrude tubing from 0.005 to 0.030 in. in wall thickness to a tolerance of ±0.001 in. in thickness and ±0.002 in. in diameter.

EARLY attempts by the extrusion industry to produce thin walled tubing of uniform thickness and diameter involved the extrusion of a relatively heavy walled tube, followed by inflation and stretching of the latter to the correct diameter and thickness. The difficulty involved in maintaining dimensional control made this process impracticable for most commercial work and indicated the need for a better method.

Cooling dies to "freeze" the plastic tubing to the desired shape and size subsequent to hot extrusion were employed in this country prior to the present work. These cooling dies were separate from the forming mechanism and involved a two step batch type process: extrusion of the plastic tube to approximately the correct size, followed by inflation and passage of this tube through the cooling unit for size control.

Efforts to produce thin walled tubing with this process, shown in Fig. 1, were not commercially successful, since it was difficult to maintain the required critical control of air pressure within the tubing. Such control is necessary to prevent over-inflation at the entrance to the cooling die, as shown by the dotted lines in Fig. 1, which would interrupt operation.

Cooling device

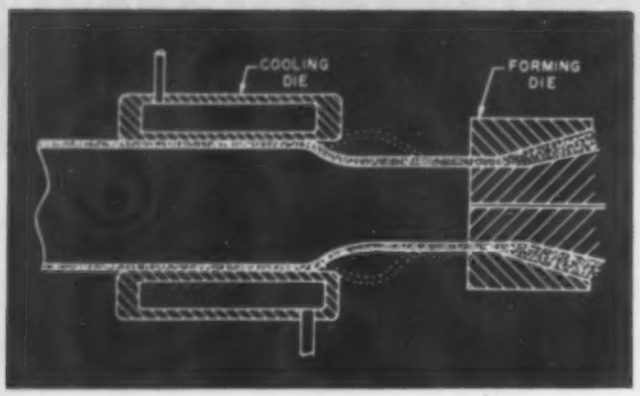
The use of the assembly shown in Fig. 1 served to indicate that a cooling die was the logical solution to the problem, provided excessive inflation could be eliminated.

A device directly connected to the forming die and with the same diameter at its entrance as the forming die, but flared outward, as shown in Fig. 2, seemed suitable since, in theory, excessive inflation of the plastic tubing would be prevented by the flared supporting surface at the entrance to the cooling die. This did not prove to be true. The extruded plastic tube adhered to the flared supporting surface and ruptured at that point when drawn through the cooling device and the cooling die prohibitively reduced the temperature of the forming die. The use of this device did indicate quite clearly, however, that the forming die should be of smaller diameter than the cooling die, and that the forming die and cooling device should be attached, but heat insulated from each other. When a heavy Transite washer was used as insulation, the construction shown in Fig. 3 resulted.

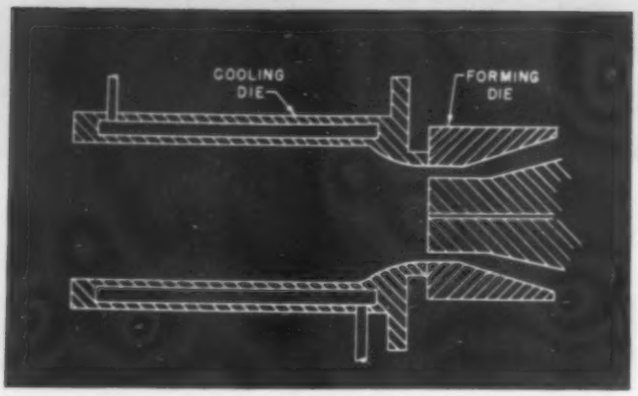
In preliminary testing, lengths of approximately 25 ft. of Vinylite plastic rigid tubing could be extruded satisfactorily with this construction. Greater lengths could not be made because of tubing rupture somewhere within the cooling device.

Investigation revealed that the device shown in Fig. 3 possessed the same defect as that noted for the construction shown in Fig. 1, i.e., binding. To correct this condition, it appeared that an opposing air pressure in the space between the hot plastic tube and the cooling sleeve (zone H, Fig. 3) was required in order to prevent the extruded tube

*Reg. U. S. Patent Office.
†Bakelite Corp.



1 — Early set up for producing thin walled tubing was not successful because of difficulty in controlling air pressure



2 — A cooling die was next connected to the forming die but tube was found to adhere to flared surface and then rupture

from expanding back against the forming die.

To accomplish this objective a tube, D, connected with the air line leading to the opening in the forming pin, was inserted through the Transite insulator as shown in Fig. 4. A bleeder tube, E, with pinch cock or control valve was then inserted through the Transite insulator opposite D to provide a control for the pressure in zone H.

If the pressure in H is equal to or greater than that in F, as when the outlet from E is closed, then the extruded tube fails to inflate within the cooling sleeve but inflates excessively beyond the cooling mechanism as shown in Fig. 5. If the pressure in H is too low, the plastic tube expands back against the forming die and ruptures at that point.

The ideal condition is achieved when the pressure in H is slightly below that in F, as when the control valve in E is slightly open. When this condition is established, the extruded plastic tube expands against the cooling sleeve, but cannot expand back against the forming die, due to the opposing pressure in H.

With the addition of air pressure and bleeder tubes D and E, it seemed that all of the obstacles involved in the extrusion process had been eliminated. Unfortunately, this did not prove to be so.

When a plastic is hot extruded, and quickly brought into contact with a highly polished surface, the plastic assumes the smoothness of the contacting surface and the two adhere quite firmly. Despite the elimination of other obstacles and deficiencies, this adhesion prevented continuous extrusion since considerable force was required to draw the cooled extruded plastic tube through the cooling sleeve. The inner surface of the sleeve was then acid etched to a light matte finish, and with this etching, which provided a discontinuous contact surface, the continuous extrusion of thin walled rigid Vinylite plastic tubing was finally accomplished. It is important to note that the matte surface of the cooling sleeve does not detract from the smoothness or gloss of the extruded tube. The cooling sleeve may be of either steel or brass and should be lightly chromium plated to prevent excessive wear.

Forming die and pin diameters

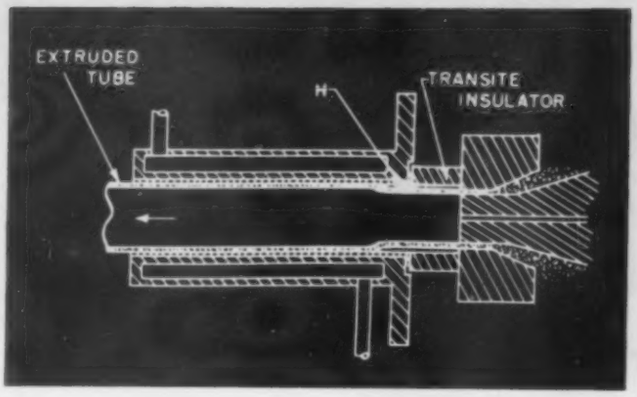
All of the foregoing work was directed toward the production of tubing with an inside diameter of 1.250 in. and a wall thickness of approximately 0.020 in. (1.290-in. outside diameter). Some work was conducted, even while the cooling device was being developed, to determine the most favorable combination of forming die and pin sizes, of the limited number available, to be used in conjunction with a cooling sleeve of 1.290-in. inside diameter.

A forming die of 1.125-in. diameter was used with forming pins having diameters of 1.0625 in., 0.931 in. and 0.591 in., to establish the most suitable available combination for use with the 1.290-in. diameter cooling sleeve. Of these, the 1.125-in. forming die and 0.931-in. forming pin functioned best for rigid Vinylite plastic extrusion with particularly efficient results for compound VG-5885.

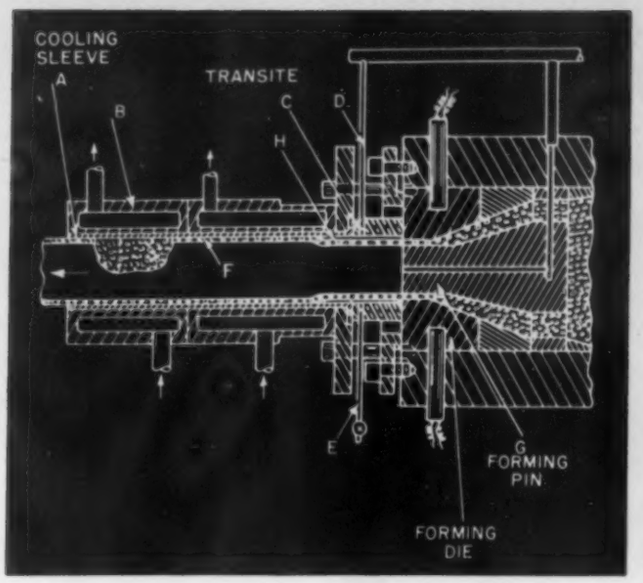
Theoretically, the cross sectional area of the forming die opening should be equal to or greater than the cross sectional area of the finished tube. If the cross sectional areas are equal, the conveyor take-off speed should be so adjusted that no longitudinal stretching of the tubing takes place. If, however, the cross sectional area of the forming die opening is greater than the cross-sectional area of the desired plastic tube, the conveyor take-off speed must be so adjusted as to stretch the extruded tube longitudinally to attain proper finished dimensions.

Later work indicated that a die of 1.00-in. diameter and a forming pin of 0.900-in. diameter functioned better with a 1.290 in. cooling sleeve, and that this combination made it possible to extrude tubing varying from 0.005 to 0.030 in. in thickness with an outside diameter of 1.290 inches.

On the basis of this information, it would appear that the area of the forming die opening should be from two to three times that of the intended cross sectional area of the extruded tube, and that the



3 — When a heavy washer was added for heat insulation, lengths over 25 ft. were found to rupture somewhere in cooling device



4 — An opposing air pressure between the tube and cooling sleeve is provided by tube D and tube E with control valve

forming die should be approximately 20% smaller in diameter than that of the cooling sleeve for the extrusion of Vinylite rigid plastic.

Land length

Dies with horizontal or land lengths of 1.00 in. and 0.50 in. were tried and a definite advantage was noted in extrusion rate when the shorter land was employed. The preferred die of 1.00-in. diameter noted above was provided with a 0.50-in. land when used with the 0.90-in. pin. It is possible that a reduction in land length to ¼ in. might effect an increase in extrusion rate but at the expense of surface finish.

Cooling sleeves of 6, 8, and 10-in. length were employed and the 8-in. length found quite satisfactory for extrusion rates up to 80 lb. per hour. At extrutrusion rate but at the expense of surface finish.

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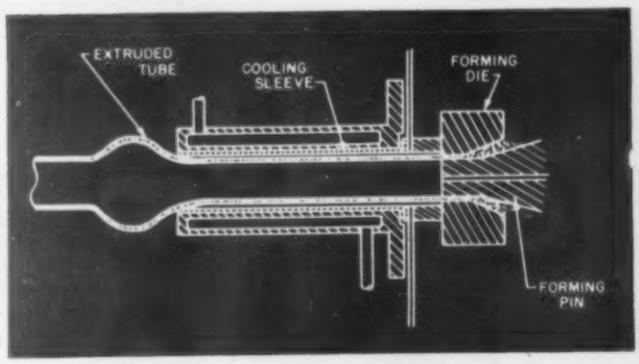
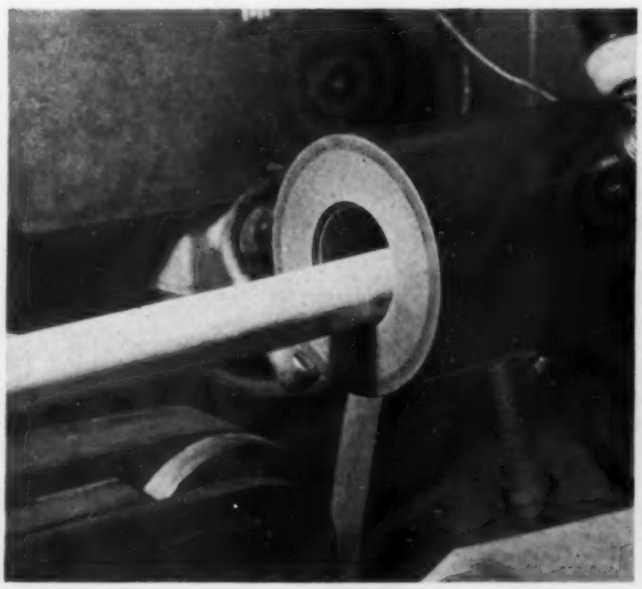
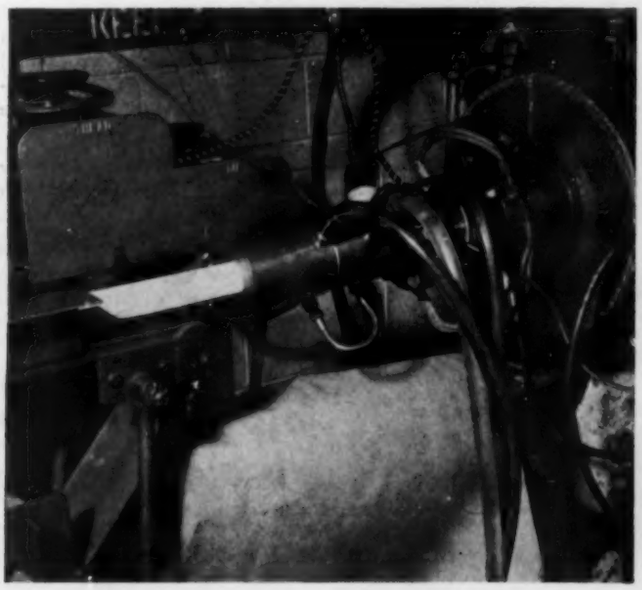
5 — Tube inflates excessively beyond the cooling mechanism if pressure in H is equal to or greater than that in F, Fig. 4



6 — Here an extruded tube is shown as it comes from the cooling sleeve before air pressure expands it against sleeve



7 — An extruded tube is shown as it comes from the cooling sleeve and expands to desired dimensions against this sleeve



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—serving the Plastics Industry and the Individual

Plaskon Molding Compounds include Plaskon urea- and melamine-formaldehyde molding compounds, which can be used to easily and economically mold:

Containers	Electrical Parts and Supplies	Radio Cabinets
Display Boxes	Handles and Knobs	Lighting Reflectors
Buttons	Hardware	Kitchen Utensils
Closures	Housings	Housewares
Dishware		Utility Parts

and a wide range of other useful products in many classifications

Properties of Molded Plaskon Urea-Formaldehyde

COLOR. Complete range of commercially lightfast shades, from translucent natural and pure white, through the pastels and brilliant hues, to jet black.

SURFACE AND FINISH. Molded Plaskon urea-formaldehyde is very smooth, attractive to the eye, and friendly to the touch.

RESISTANCE. Offers a unique resistance to common commercial solvents, such as alcohol and acetone. Resistant to weak alkalies and weak acids. Impervious to oils, greases and waxes.

STABILITY. Plaskon urea-formaldehyde is entirely tasteless, odorless and inert, and may be used safely in conjunction with food and other palatables.

EFFECT OF HEAT. Will not support combustion, or soften when exposed to high temperatures.

TRANSLUCENCY. Produced in a high degree of translucency, but is not produced in transparent form.

STRENGTH. An extremely light material with specific gravity of about 1.50, possessing strength quite out of proportion to its weight.

ELECTRICAL PROPERTIES. Withstands very high voltages. Dielectric power loss is low, regardless of the electrical frequency.

Properties of Molded Plaskon Melamine-Formaldehyde (Cellulose Filled)

This material is similar in many ways to Plaskon urea-formaldehyde in molding properties and physical characteristics, but offers additional features for the production of parts requiring these special characteristics:

VERY LOW MOISTURE ABSORPTION. Provides greater protection where the presence of water or high humidity prevents the use of urea compounds.

EXCEPTIONAL RESISTANCE TO ACIDS AND ALKALIES. Non-porous and non-corrodible.

HIGHLY ADVANTAGEOUS ELECTRICAL PROPERTIES. Under extreme conditions of heat and humidity, Plaskon melamine-formaldehyde is non-tracking, highly resistant to arcing, and has high dielectric strength.

HIGH HEAT RESISTANCE. Plaskon melamine-formaldehyde offers high heat resistance.

Expert Engineering Services

Plaskon will assist you with engineering and design services to help you adapt Plaskon* Molding Compounds to your specific needs. If you are considering plastics for use in your products, let us be of service to you through every step of your planning.

*Reg. U. S. Pat. Off.

SEE PRIZE-WINNING TOLEDO Guardian 70 Duplex SCALE

Seventh Modern Plastics Competition

in Plaskon Advertisement, Page 33. This Issue, and

***at the* PLASKON EXHIBIT, Space 54-55**

THIRD NATIONAL PLASTICS EXPOSITION

Grand Central Palace, New York, Sept. 27—Oct. 1

PLASKON DIVISION LIBBEY • OWENS • FORD GLASS COMPANY

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In Canada: Canadian Industries, Ltd., Montreal, P. Q.

STRENGTH is emphasized in this well-designed Lanfare toilet seat of Plaskon Molded Color.

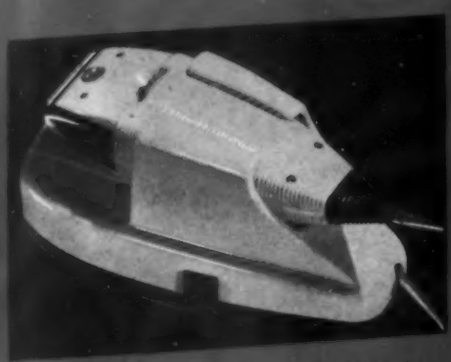
ATTRACTIVE appearance is a major selling feature in this General Electric Radio with Plaskon Molded Color housing.

COLOR—Natural skin shades are attained with Plaskon Molded Color in this Telex hearing aid ear unit, battery case and display box.

SERVICE under all kinds of garment conditions is assured by Plaskon Molded Color buttons.

BEAUTY is added to containers by the unusual designs and rich hues in Plaskon Molded Color closures.

DISTINCTIVE containers of Plaskon Molded Color are used by America's leading cosmetic manufacturers.

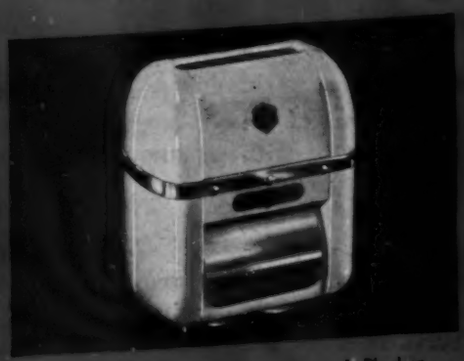


ELECTRICAL qualities of Plaskon Molded Color are emphasized in this Schick electric shaver housing and wall bracket.

FREEDOM from odor and taste recommends the use of Plaskon Molded Color for this Homeware for all eating occasions.

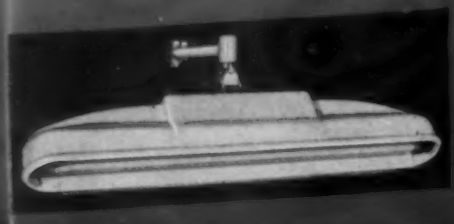
LARGE size of moldings possible with Plaskon materials is illustrated by this Nestle Fleetwave housing, measuring 21⅜" wide, 18¼" deep, 10½" high.

LIGHTWEIGHT, strength and beauty are Plaskon Molded Color features in this Cincinnati Advertising Clock.



SMOOTH, non-porous surface of Plaskon Molded Color aids sanitation in this large Steakmaster machine.

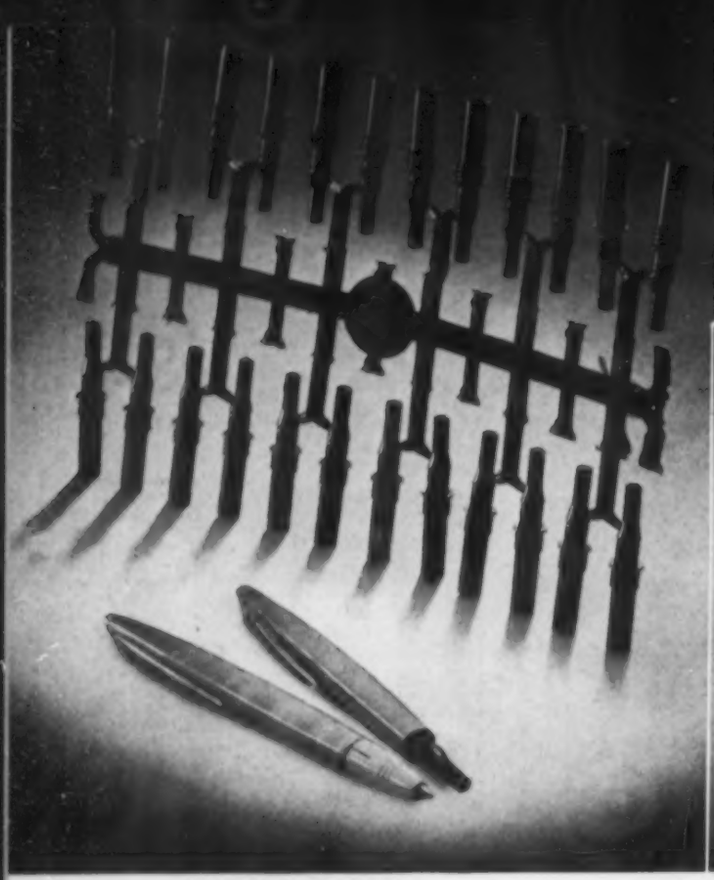
MODERN design in Bulova display cases for fine watches is achieved with Plaskon Molded Color.



BALANCED light reflectivity and transmittance makes Plaskon Molded Color ideal for this new fluorescent Stand-Lamp.

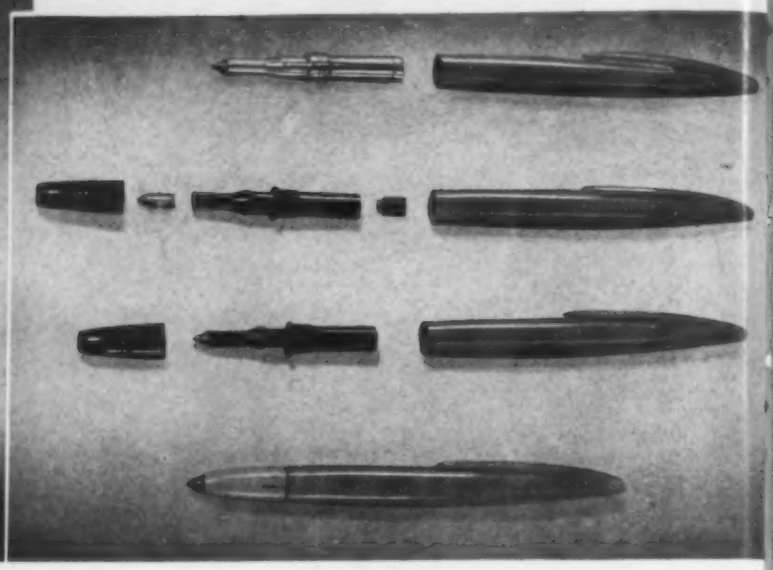
PLASKON

MOLDED COLOR



Left: Complete shot of modified polystyrene ink cartridges shows gate location used to achieve the desired strength

Below: Shape of plastic cartridges, center, is almost identical with the metal type they replace. Assembled pen with polystyrene cap and barrel is shown at bottom of the photo



Molding Plastic Pen Components

by WALTER RUDOLPH

AFTER elaborate testing of plastics materials, Perry Plastics Co., Erie, Pa., redesigned a pen barrel and its ink cartridge for the Reynolds Pen Co., Chicago, eliminating the metal clip and aluminum cartridge formerly used. Added sales appeal, more economical production, and reduced assembly time were advantages gained by this work.

In the new pens, the clip is an integral part of the barrel. Extensive experiments were conducted with models molded of acetate, butyrate, and styrene to ascertain the material best suited to give the clip the flexural strength needed. Koppers C-7 polystyrene out-lasted other plastics to the breaking point and was chosen for the job. Gating tests revealed that the barrel tip would serve best for the feeding entrance to the mold.

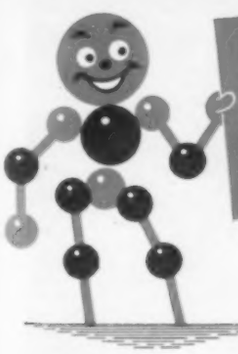
In the interest of molding speed, it was decided to use two core blocks between the mold halves. Four of these cores were made, so that two could be used in molding while the duplicates were being unloaded. Also, it was planned to use two press operators, one to each side of the press. As the press opens at completion of the molding cycle, each operator removes a core half, complete with molded parts, from his side of the mold, and then inserts a clean core, thus readying the mold for the next shot.

As each core block holds inserts for 10 cavities in the 20-cavity mold, each operator has 10 pen barrels to remove from the inserts during the following molding cycle. An 8-oz. Reed-Prentice press does the job, molding at 400° for a 35 sec. cycle.

Unscrewing device developed

Tapping machines were first used to remove the barrels from the cores because of the threads molded into the barrel end. This procedure proved too slow, however, as each barrel had to be individually turned. Stokes worked with a local concern, the Tri-Penn Tool Co., in devising a multiple unscrewing device that reduces core-unloading time considerably.

This device consists of a steel work table under which is mounted a continuously running ¼ hp. electric motor with a belt drive to a gear head on



Stays new-looking longer!

This handsome furniture is lovely to look at, comfortable to sit in, and guaranteed to take the most rugged kind of treatment . . . indoors or out . . . because it's covered with Perbunan polyvinyl-chloride upholstery fabric.

This superior covering has *everything!* Leave it in the sun's hottest rays or near heating units . . . it doesn't become tacky. Alcohol, oil, fats, and most fluids don't harm it. Keep it out in freezing weather, use it for years . . . it never becomes stiff. And you can rinse away stains with soap and water.

Decorators and designers go for the many rich colors that this sturdy new fabric can be made in. And its remarkable durability withstands roughest use, makes it ideal for showrooms, stores, restaurants, bars and other commercial establishments where furniture receives heavy wear.

The valuable qualities of versatile Perbunan combined with vinyl resins can produce fabrics for many purposes in many lines of business. For further information on Perbunan polyvinyl-chloride blends and other fabrics containing Perbunan, please write to:

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PERBUNAN
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The special rubber that resists oil, air, water, heat, cold and time

the table. The gear head runs five spindles counterclockwise simultaneously. On the end of each spindle is a hollow plug with a Cerobent insert (soft metal, melts at 180°), and the spindles are spaced to intercept alternate pen barrel tips when a core block is brought up to the inserts.

To give the operator flexibility in the speed with which these spindles unscrew the barrels from the core, a foot pedal fastened to the motor mounting must be gradually depressed to tighten the belt drive and cause the spindles to revolve. As pressure is released on this foot pedal, a spring below one end of the motor mounting pushes up, loosening the belt drive and slowing or stopping the spindles. The operator is thus able to remove all 10 barrels from his core half with only two contacts against the unscrewing device. After muslin and flannel buffing for flash removal and polishing, the pen barrels are ready to ship.

Ink cartridge problems

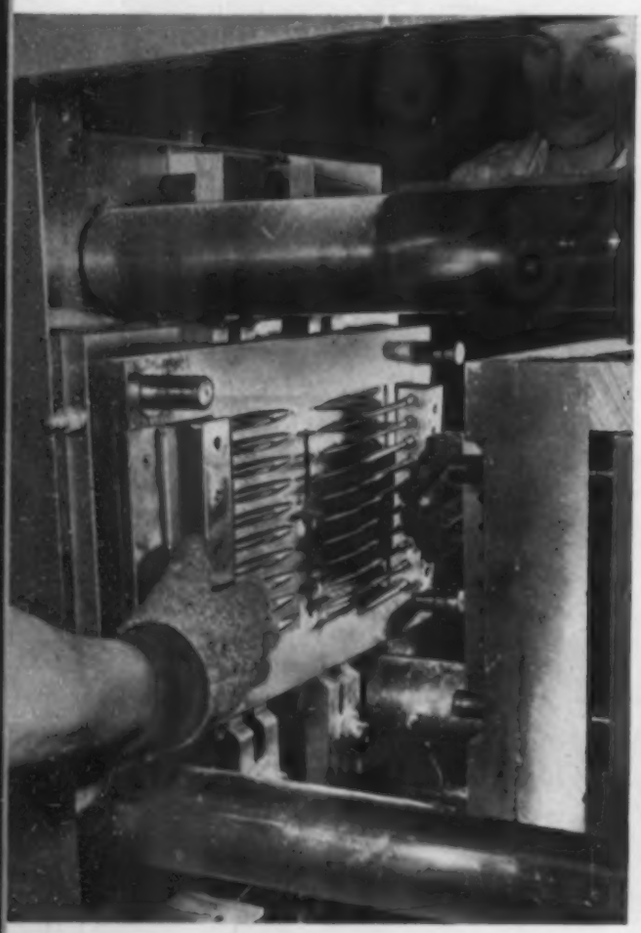
The designing and molding of the ink cartridge, according to Stokes, was the more difficult part of the job. Considerable experimentation was first necessary to find the plastic material which would be the most resistant to deterioration from the ink.

Plexene M proved to be the answer. Then slight changes were necessary in the cartridge's former design as an aluminum screw-machine product. Tolerances of ± 0.0005 in. had to be maintained on the ink receiving end, while the tip end called for ± 0.001 inch. All diameters had to be held to ± 0.001 in. in the plastic cartridge, and length was held to +0.005 in. and minus nothing.

The third cartridge problem concerned its gating. It was not difficult to fill the cavity designed, but physical properties were not good. For instance, the first attempt with a ring gate on the cartridge tip proved abortive when a taper in the cartridge wall frequently gave way upon receiving a metal insert in final assembly.

After several experiments and a study of the part with polarized light, Stokes located a ring gate right on the cartridge taper and achieved the desired strength. A 24-cavity mold was designed, with molding done on an 8-oz. Reed-Prentice press, 30 sec. cycle. Molding temperature can run anywhere from 480 to 520°. The press operator trims the cartridges which are then tumbled to remove sharp corners and flash particles.

Two core blocks are used to speed molding. Operators can insert or remove them from two sides at once



Tapping machines for removing barrels from cores proved too slow. Accordingly, an unscrewing device was devised to loosen five barrels simultaneously

AWARDS

...and REWARDS

The Plastics Department of American Cyanamid Company is proud and pleased to have won the Merchandising Award in the seventh Modern Plastics Competition. We are gratified to have this recognition of our contribution to the establishment of a new, important and growing market.

We wish to point out that had it not been for the significant investment of money, time and brains on the part of many molders, this program would have been most difficult to carry out. Their recognition of the existence of a large market for high-quality, well-designed MELMAC* Tableware has contributed immeasurably to the success of our project.

We feel highly rewarded, too, to be identified with winners in three other competition classifications as described on following pages.

*Reg. U. S. Pat. Off.

CYANAMID'S DEVELOPMENT AND PROMOTION OF

MELMAC TABLEWARE WINS MODERN PLASTICS AWARD

Advertisements about MELMAC Tableware have appeared throughout the year in such publications as the *Saturday Evening Post, Time, Restaurant Management* and *Institutions.* The *Plastics Newsfront,* Cyanamid's own publication, has also been telling the story of MELMAC Tableware to 15,000 interested readers.

Cyanamid, via manufacturers (see list), has backed up this program by distributing tens of informative leaflets giving important facts about the use and care of Melmac Tableware.

MOLDERS PRODUCING MELMAC TABLEWARE as of May 15, 1948†

Applied Plastics Division, Keystone Brass Works, Erie, Pennsylvania
Devine Foods Inc., Chicago, Illinois
Hemco Plastics Division, The Bryant Electric Co., Bridgeport, Connecticut
Boonton Molding Co., Boonton, New Jersey
Watertown Mfg. Co., Watertown, Connecticut
Plastic Mfg. Co., Dallas, Texas
Northern Industrial Chemical Co., South Boston, Massachusetts
General American Transportation Co., Chicago, Illinois
Plastics, Inc., St. Paul, Minnesota
Maple Leaf Plastics Co., Toronto, Canada
Nichols Plastic & Engineering Co., Los Angeles, California

†Closing date of competition. Additional molders have since begun to produce Melmac Tableware.

BEETLE® plastics — urea-formaldehyde thermosetting molding compounds. MELMAC® plastics — melamine-formaldehyde thermosetting molding compounds, industrial and laminating resins. URAC® resins — urea-formaldehyde thermosetting industrial resins and adhesives. MELURAC® resins — melamine-urea-formaldehyde thermosetting resin adhesives and laminating resins. LAMINAC® resins — thermosetting polyester resins. ®Reg. U.S. Pat. Off.

D FOR MERCHANDISING

Here, briefly are the facts behind the ever-increasing Melmac Tableware "Success-Story."

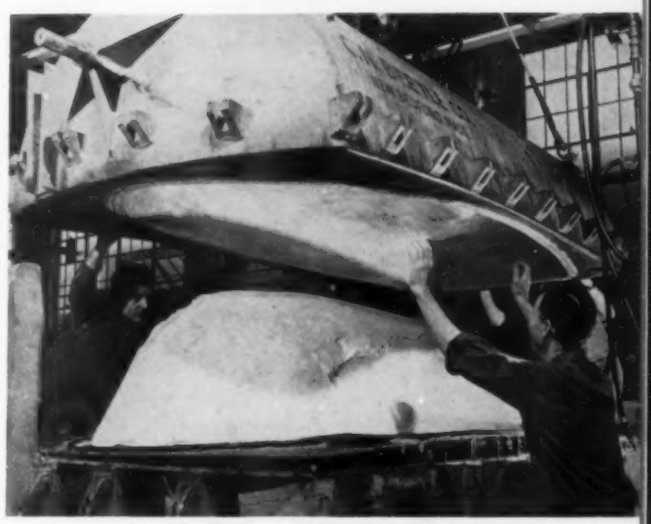
In 1945, American Cyanamid Company decided to investigate the opportunities for developing a profitable large volume market for tableware molded of Melmac. As a result, three projects were initiated and have since been completed.

1. *Product and Market Research:* With the expert cooperation of Russell Wright, designer, and restaurant operators, Cyanamid produced molds for a complete tableware service. Sets were supplied to nine restaurants for extensive "in use" tests. Cyanamid also subsidized comprehensive market surveys and analyses for both commercial and domestic applications.

2. *Product Sales Promotion:* Having clearly established the merits of the product, Cyanamid proceeded to build the demand that has made a profitable market for molders who have gone into the production of Melmac Tableware. Advertising at the domestic level was placed in the *Saturday Evening Post, Time, Newsweek, Crockery and Glassware Journal.* The commercial market was reached through *Time, Institutions* and *Restaurant Management.* Intensive direct mail was used to supplement this promotion, as was publicity in newspapers, general magazines and trade journals. Frequent general articles and case histories were published in Cyanamid's own publication, *Plastics Newsfront.*

3. *Quality, Maintenance and Market Protection:* From the beginning, information gained from Cyanamid's continuing research on melamine tableware has been periodically published and distributed to molders for use by their sales force and jobbers.

Cyanamid sponsored the formation of the Tableware Division of SPI, Melamine Committee. Purposes: To establish voluntary minimum standards of quality; to promulgate informative labelling; to develop a hallmark of quality for use on melamine tableware complying with quality standards as set by the Tableware Division of SPI.



The Beetle Boat Company's BB-9 is molded in one piece. Tailored pieces of Fiberglass are impregnated with Cyanamid's LAMINAC 4129. Tests have proved that it will not rot, leak or corrode.

The Class of the Sports Classification

The Beetle Boat Company's Plastic Boat — Using Cyanamid's LAMINAC Resin 4129

The objective of the Beetle Boat Company (award winner of the Sports Classification of the Seventh Modern Plastics Competition) was to produce a one-piece non-sinkable leakproof boat of low pressure laminate. This the General Electric Company successfully accomplished.

Owens-Corning Fiberglass and Cyanamid LAMINAC Resin 4129, a rigid type, thermosetting polyester resin are used throughout the boat.

Because of the nature of this material, the Beetle 12′ sailboat requires practically no maintenance, can be stored without regard to climate, is resistant to corrosion and decay and is impervious to salt water and worms. It will not swell or dent and has both tensile and impact strength greater than similar boats of any other materials, weight for weight.

The Class of the Building and Equipment Classification

the Sherron Plastic Telephone Booth . . .
using Cyanamid's MELMAC Resin 405

The Sherron Telephone Booth is the Modern Plastics award winner for the Building and Equipment Classification. The Sherron Booth, which has long been accepted as standard equipment by the telephone industry, has recently been restyled to make use of plastics as an advantageous structural feature.

In keeping with the modern and practical use of plastics, the Sherron Organization developed walls and ceilings fabricated of General Electric's TEXTOLITE Plastics surfaced with Cyanamid's MELMAC Resin 405 in the laminating process.

The Class of the Jewelry and Novelties Classification

the Xpray Plastic Atomizer . . .
using Cyanamid BEETLE Plastic

The Xpray Plastic Atomizer, winner of the Jewelry and Novelties Classification award of the Seventh Modern Plastics Competition award, utilizes a Cyanamid BEETLE Plastic top.

This BEETLE plastic atomizer has the following advantages over the old rubber bulb types: It will not deteriorate or soil through constant handling . . . it can be operated with one hand and with pressure it ejects a fine spray due to special design and assembly.

* * *

Beetle Plastic has many other advantages, too. It comes in a wide variety of colors that won't scratch or chip off. It won't soften or deform or catch fire under exposure to heat — is odorless, tasteless — it isn't damaged by household cleansing fluids, common solvents or essential oils — and has excellent electrical properties.

The widely differing types of award-winning products in which Cyanamid plastics are used — tableware, boats, telephone booths and atomizers — indicate the tremendous possibilities inherent in these materials for helping make new markets and sales . . . possibly unthought of as yet.

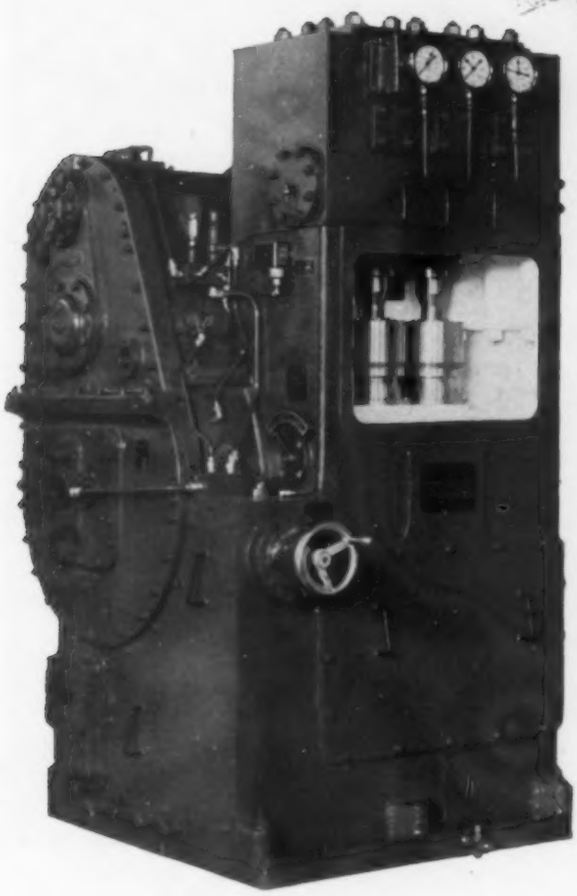
If you have an idea for a plastic product or part, consult the Cyanamid Technical staff. This staff will be glad to help you solve problems in plastic application and design. And if our materials do not fill the bill exactly, we will cheerfully direct you to the right sources.

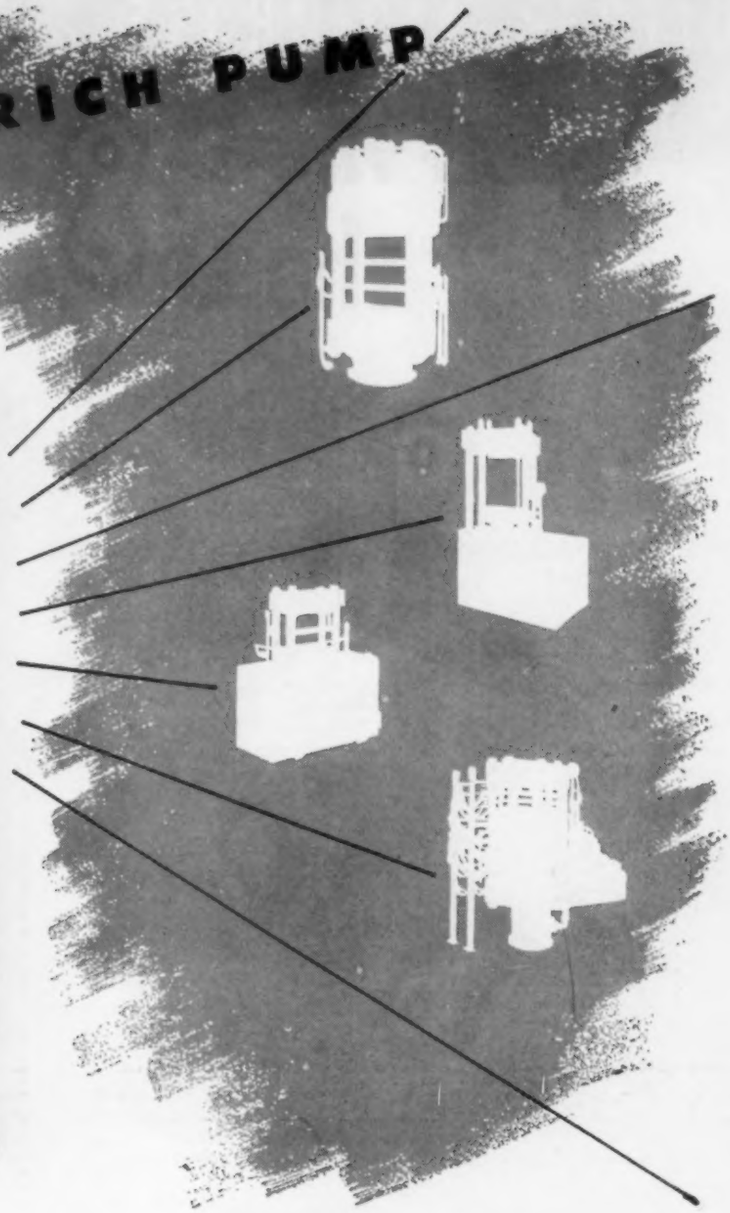
AMERICAN Cyanamid COMPANY

PLASTICS DEPARTMENT

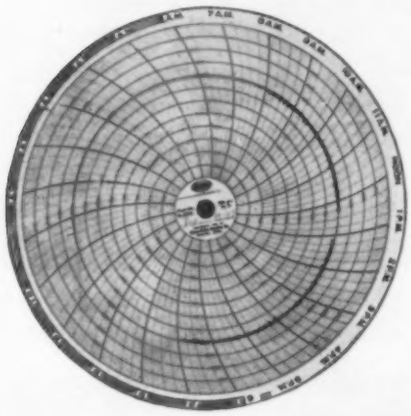
32 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.

USE *One* ALDRICH PUMP





For All Your Plastic Molding Presses



With one ALDRICH-GROFF "POWR-SAVR" PUMP, you can provide uniform hydraulic pressures for all your plastic molding presses and obtain the higher efficiency of a centralized hydraulic system at the same time.

The ALDRICH-GROFF "POWR-SAVR", a variable stroke, constant speed, variable capacity pump, will handle any free-flowing liquid—can be automatically controlled to provide stepless, straight-line variation from zero to rated maximum output. Working pressures up to 15,000 psi can be maintained and variance will not exceed 5% of that desired.

Centralize your system—you get compactness, quick accessibility, easy maintenance and greater economy. Write for technical details to—

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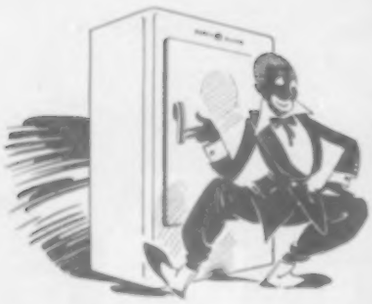
ALDRICH, THE FIRST NAME IN VARIABLE CAPACITY PUMPS

"Open the Door...and Close the Door, *Richard*

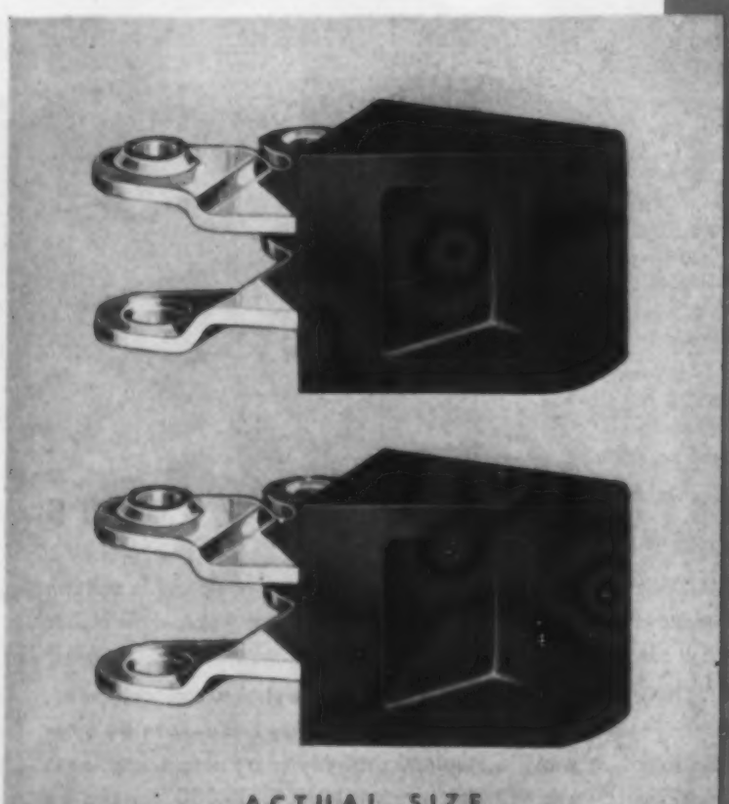
—as many times as you like!"



These Plastic Refrigerator Door Lock Bolts are "in their groove"

Wherever plastic formulations call for strength, the need is served by a Claremont Cotton Filler! Here, Monsanto Chemical Company's plastic material #5924 was compounded with Claremont flock . . . the right answer to the manufacturer's high-impact resistance requirements. When so molded*, these refrigerator door lock bolts became veritable "Samsons" . . . tough, rugged, lightweight latches that *stand-up* to day-in and day-out *open and shut* service!

Among the field's best known plastic formulations, Claremont Fillers stand foremost in "intestinal fortitude." Available in four types and ranging in degrees of strength from strong to strongest, one of Claremont Fillers (flock, thread, chopped fabric and cord) is certain to supply the needed structural toughness—produce the desired result. Carefully graded and uniform in size, all cotton fibres are processed to your specific plastic requirements . . . in both white and black. Upon your request, we will gladly forward prices and samples for laboratory test runs.



ACTUAL SIZE

★CREDITS

Refrigerator Door Lock Bolts shown here thru the courtesy of their molder, Waterbury Companies, Inc. of Waterbury, Conn. Material used was Monsanto's impact resistant #5924 fortified with Claremont's standard cotton (black) flock filler.

CLAREMONT
•
FLOCK
THREAD
FABRIC
CORD

CLAREMONT THE FILLER IS THE HEART

WASTE MANUFACTURING CO.

"The Country's Largest Manufacturer of Flock" CLAREMONT, N. H.

Direct Molding of Plastics from Casein and Carbamido Casein*

by NORBERT J. HIPP, MERTON L. GROVES, A. P. SWAIN†, and RICHARD W. JACKSON‡

Molding powders prepared from casein and carbamido casein, which are prehardened with formaldehyde, can be readily molded into simple objects having good strength. With the aid of an organic plasticizer and with a maximum of 10% water in the molding powder, these materials can be molded into specimens which have dimensional stability under ordinary atmospheric conditions. Chemical modification of casein to carbamido casein materially improves the water absorption of the protein, yet does not destroy its adhesive properties. The possible value of carbamido casein for use in fields other than plastics has not been fully explored. A new tensile strength test specimen with appropriate specimen holders is also described.

CASEIN plastics have maintained a good, though limited, position for many years, owing principally to the range, depth, and stability of their color. The process of manufacture in general use[1] has been little affected by the rapid strides made in the molding of other types of plastics. The maker of casein plastics would like to increase his rate of turnover by eliminating, for example, the several days used for curing the product in a formaldehyde bath. Since direct molding would offer a solution for some of the difficulties in the present manufacturing scheme, plasticizers and synthetic resins as well as chemical modification have been employed in numerous attempts to prepare satisfactory molding powders from proteins. As compared with the shaping machines in use at present, which can be adjusted to turn out many different types of protein plastic buttons, molds for this purpose would not be an unmixed blessing. They would need to be multi-cavity and therefore would be expensive and would require heavy and prolonged production to cover their cost. Nevertheless, the advantages of direct molding appear sufficient to justify continued efforts to find successful means of accomplishment.

If hardening of protein plastics is to be avoided following molding, it must be performed in some manner before or during molding. Substances which might give delayed hardening have received considerable attention, but we wish here to deal with materials hardened before molding. Formaldehyde has been used, for example,[2, 3, 4, 5] to preharden

*A contribution from the Eastern Regional Research Laboratory, Philadelphia 18, Pa., one of the laboratories of the Bureau of Agricultural and Industrial Chemistry, Agricultural Research Administration, U. S. Department of Agriculture.

†Present address: McNeil Laboratories, Inc., Philadelphia, Pa.

‡Present address: Northern Regional Research Laboratory, Peoria 5, Ill.

[1] "Casein and its industrial applications," by E. Sutermeister and F. L. Browne, A.C.S. Monograph 30, 2nd Ed., Chap. 7, by G. H. Brother, Reinhold Pub. Corp., New York City, 1939.

[2] German Patent 523,947, April 30, 1931, by Heinz Busse.

[3] "Indurated albuminoid compound," by B. B. Goldsmith, U. S. Patent 1,027,121, May 21, 1912. "Indurated casein compounds," by B. B. Goldsmith, U. S. Patent 1,027,122, May 21, 1912.

[4] "Manufacture of articles for proteins," by H. Plauson, assignor to D. R. Rotman, U. S. Patent 1,395,729, Nov. 1, 1921.

[5] German Patent 489,438, Jan. 17, 1930, by P. Stock.

1 — Tensile strength test specimens and specimen holder. A: Tensile strength specimen, 0.200-in. diameter at minimum point with 3-in. radius of curvature. B: Specimen holder, ball-swivel joint insert. C: Ball-swivel joint insert, surface corresponding to the curvature of specimen. D: Specimen holder, universal joints

Table I.—Tensile Strength Measurements[a]. Comparison of: 1. Tinius Olsen machine and modified Scott J-2 tester; 2. Spindles of three different diameters; 3. Spindle specimens and dumbbell specimens.

Specimen	*Material*[b]	*Testing machine used*		*Differences by reference to Tinius Olsen values for 0.200 in. spindles*			
		Modified Scott	*Tinius Olsen*	*Modified Scott*		*Tinius Olsen*	
		p.s.i.	*p.s.i.*	*p.s.i.*	*%*	*p.s.i.*	*%*
Spindle 0.160-in. diam.	Casein		8990			+ 90	+ 1.0
	Carbamido casein		8940			None	0.0
	Oleoyl casein		5330			— 80	— 1.5
Spindle 0.200-in. diam.	Casein	9240	8900[c]	+340	+3.8		
	Carbamido casein	9380	8940[c]	+440	+4.9		
	Oleoyl casein	5710	5410[c]	+300	+5.5		
Spindle 0.312(5/16)-in. diam.	Casein		8430			— 470	— 5.3
	Carbamido casein		8560			— 380	— 4.3
	Oleoyl casein		4650			— 760	—14.0
Dumbbell 0.125(1/8) in. by 1 in. wide	Casein		9240			+ 340	+ 3.8
	Carbamido casein		7970			— 970	—10.9
	Oleoyl casein		4310			—1100	—20.3
Dumbbell 0.200 in. thick by 1 in. wide	Casein		8500			— 400	— 4.4
	Carbamido casein		7720			—1220	—13.6
	Oleoyl casein		3760			—1650	—30.5

[a]The values given are the average of six to eight results.
[b]All the materials were hardened with formaldehyde before molding. The casein and carbamido casein (100 parts casein treated with 10 parts of KCNO) were hardened in solution with 4% formaldehyde. The oleoyl casein has been described by Gordon *et al.* (reference 27, sample 38-39 in Table V).
[c]These are the values used for reference.

casein for use in molding powders; Brother and McKinney[6,7] have reported extensive experiments of this type, particularly with soybean protein. The effect of formaldehyde, however, is to increase the viscosity of wet protein material, and there is, in fact, a definite limit on the amount of formaldehyde compatible with extrusion or molding under reasonable conditions of temperature, pressure and moisture content. For this reason, we have included in this investigation a number of experiments on a modified casein, namely, carbamido casein. This may be regarded as essentially having the basic amino groups replaced with the weakly basic urea groups. Certain properties of carbamido casein are improved by formaldehyde, which it readily takes up, and flow, although lowered, is not affected to the same degree as in the original casein treated with formaldehyde. Another reason for selecting carbamido casein for study was the hope that the urea group might lend itself for condensation with formaldehyde in the same manner as in the polymerization of urea formaldehyde resin.

[6]"Protein plastics from soybean products. Action of hardening or tanning agents on protein material," by G. H. Brother and L. L. McKinney, Ind. Eng. Chem. 30, 1236-1240 (1938).
[7]"Process for producing protein plastics," by G. H. Brother and L. L. McKinney, assignors to Secretary of U. S. Dept. of Agric., U. S. Patent 2,309,380, Jan. 26, 1943.

Table II.—Variations of Tensile Strength with Water Content of Carbamido Casein[a]

Water content at molding	*Conditioning treatment*	*Approx. water content in spindle portion at time of test*[b]	*Tensile strength*[c]
%		%	*p.s.i.*
20	4 wk., in oven at 50° C.	6.3	10,600
20	1 wk., in oven at 50° C.	8.7	9,700
20	1 wk., 31% R.H., 25° C.	9.9	9,450
20	4 wk., 31% R.H., 25° C.	8.2	9,300
20	1 wk., 50% R.H., 25° C.[d]	10.9	9,050
20	4 wk., 50% R.H., 25° C.[d]	11.0	9,000
20	1 wk., 81% R.H., 25° C.	13.9	6,950
20	4 wk., 81% R.H., 25° C.	14.2	6,850
14.4	None	14.4[e]	6,550
19.2	None	19.2[e]	4,100
25.0	None	25.0[e]	2,050

[a]The carbamido casein was made by treating 100 parts casein with 10 parts KCNO, and the product was hardened in solution with 4% formaldehyde.
[b]These values (except the last three) are the average values of three spindles from three different bars, obtained by heating to constant weight at 105° C. Samples were taken from the broken portions of the spindles immediately after testing.
[c]Tensile strength values are the average results of six tests on three separate molded specimens. The specimens were tested at 65 ± 2% R.H. at 21 ± 1° C. immediately after removal from the preconditioning atmosphere.
[d]Note A.S.T.M. conditions of 50% R.H. at 25° C. (reference 13).
[e]Actual water contents were not redetermined for these specimens, although a small amount of water was undoubtedly lost in their preparation.

Testing procedures

Water absorption—Two methods were used. For basic comparison of the water uptake of plastic disks molded from the various protein materials, the water content at saturation (25 ±0.5° C.) was determined according to Mellon[8]. The American Society for Testing Materials procedure[9] was also applied to give a more common characterization.

Tensile strength—Owing to the lack of a standard testing machine for plastics, a Scott J-2 yarn tester

[8]"Determination of the saturation water content of protein plastics," by E. F. Mellon, Ind. Eng. Chem., Anal. Ed. *17*, 743 (1945).
[9]"Standard method of test for water absorption of plastics," A.S.T.M. Designation: D 570-42.

Table III.—Effect of Pretreatment of Casein on Formaldehyde-Hardening and on the Properties of the Molded Product

Exp. No.	*Hardening of casein with formaldehyde*[a]		*A.S.T.M. 24-hr. water absorption*	*Approx. satn. water content*	*Tensile strength*
	Treatment of casein	*Condition of casein just before addition of CH_2O*	%	%	p.s.i.
C-32	None	Commercially dried	11.1	30.8	7,220
C-73	2 hr. at 85° C. and pH 8.7; then pptd. and dried at 40° C.	Dried	13.9	32.2	8,450
C-31	2 hr. at 85° C. and pH 8.7; then pptd. and held moist	Swollen	11.4	30.9	9,540
C-74	3 hr. in water at room temp.	Partially swollen	14.3	32.6	8,600

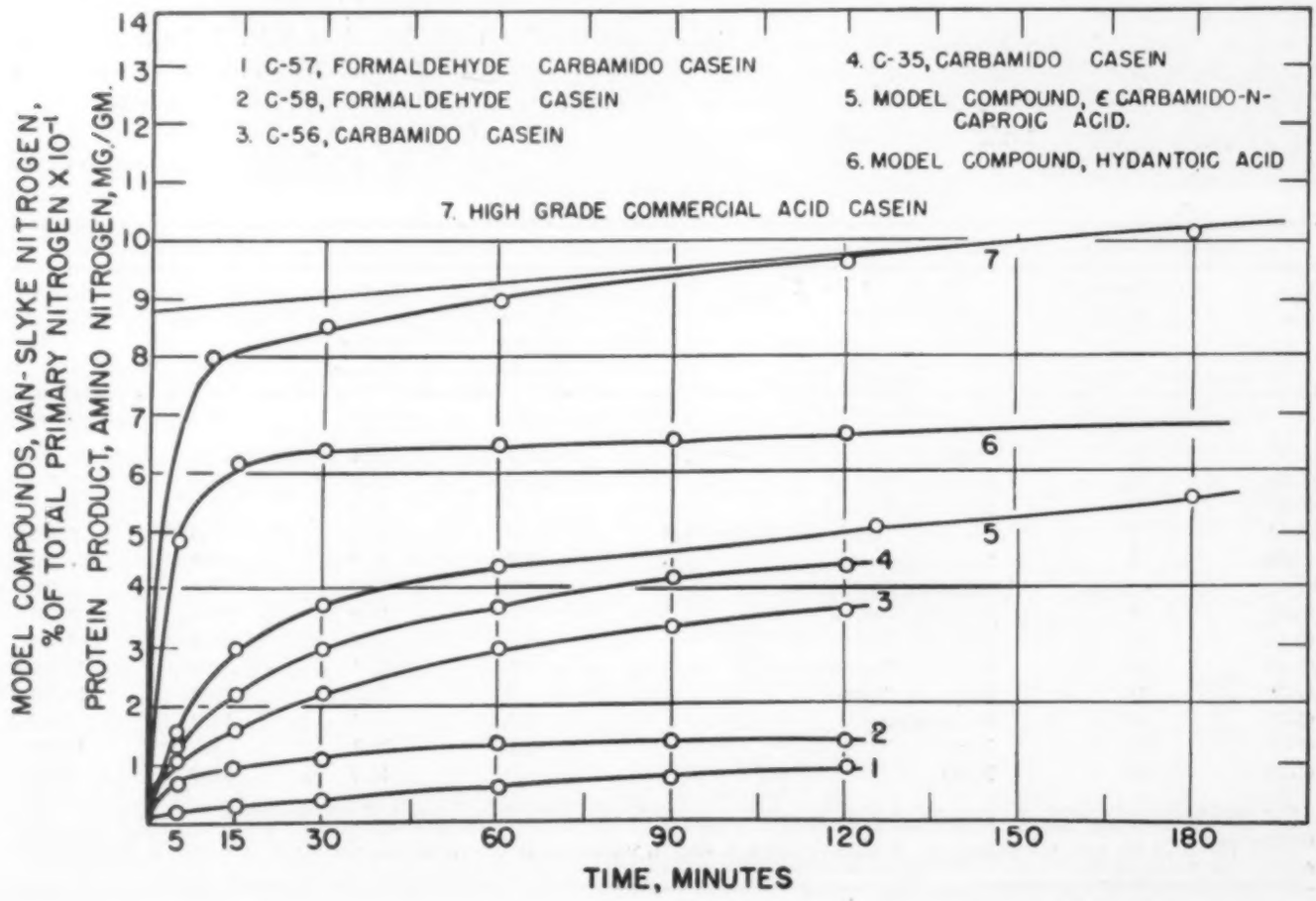
[a]Hardened in suspension with 10% formaldehyde for three days at room temperature at final pH 4.4.

was modified to meet A.S.T.M.[10] requirements for measuring the tensile strength of the plastic specimens. The screw speed of the tester was changed from 12.9 in. per min. to 0.25 in. per min. by means of sprockets and a motor with geared head. Also, the capacity of the testing machine was increased to 440 lb., and calibration was done by the dead weight method. The rate of loading with the machine running idle was 75 lb. per minute. The actual mean rate of loading of a casein plastic specimen with a diameter of 0.200 in. was 2440 p.s.i. per minute. Tensile strength test specimens (A.S.T.M.[11])

[10]"Tentative method of test for tensile properties of plastics," A.S.T.M. Designation: D 638-44T.

[11]"Tentative method of test for flexural strength of electrical insulating materials," A.S.T.M. Designation: D 650-42T.

2 — Rates of evolution of Van-Slyke nitrogen from casein and carbamido derivatives



were obtained from flexural strength test bars. The bar was cut in half, and each half (0.5 by 0.5 by 2.5 in.) was turned down to form the final specimen (Fig. 1). For machining the specimen in the lathe, a sharp cutting tool was pivoted on a 3-in. radius, and the spindle specimen was routinely made with a diameter of 0.200 ±0.004 in. at the minimum point. The specimen may be turned to any reasonable thickness as long as the load required to break the specimen is within the capacity of the testing machine. Specimens with diameters as low as 0.160 in. have given excellent check values, and with few exceptions have fractured at the minimum diameter. Self-aligning grips were especially designed to hold the specimen. The ball (Fig. 1) of the ball-swivel joint of the grip that actually bears on the shoulder of the specimen is split, and its inner curvature is made to conform as closely as possible to the corresponding curvature of the specimen. Obviously, the fit of the test piece in a given ball insert depends on the diameter of the specimen, and a bad fit might induce stresses leading to unsatisfactory fractures at break. Only two units, constructed with exact fit for specimens of 0.200 and 0.250-in. minimum diameters, respectively, were required. These provided sufficient range of bearing surface to give satisfactory tests with specimens of 0.160 to 0.320-in. minimum diameter. In addition to the ball-swivel joints, the specimen holder was constructed with two additional universal joints (Fig. 1) insuring that self-aligning would occur and that the specimens would not be subject to shear stresses.

It has been possible recently to compare the tensile strength values obtained with the modified Scott J-2 yarn tester on machined spindle specimens with those obtained with a universal testing machine (Tinius Olsen "Plastiversal") both on standard A.S.T.M.[12] dumbbell specimens and on machined spindle specimens (Table I). After conditioning, all the specimens were tested at the same mean rate of loading, that is, 2440 p.s.i. per min., which was the mean rate of loading originally employed with 0.200-in. diameter spindles on the Scott machine. To maintain this constant mean rate of loading, the crosshead speed of the universal testing machine was varied from 0.02 in. per min. for 0.312-in. diameter spindle to 0.07 in. per min. for the 0.200-in. thick dumbbells.

Table I shows good agreement between 1) values for spindles tested in the two different machines, 2) values for spindles of different diameters, especially for 0.160 and 0.200-in. diameters, and 3) values for spindles and dumbbells made from formaldehyde-hardened casein. The carbamido casein and oleoyl casein molded into dumbbell specimens gave markedly lower values than the same material in the form of spindles. In general, the spread for the individual values of a series was less for spindle specimens than for dumbbell specimens. Furthermore, the results obtained with the modified Scott machine on 0.200-in. spindles proved reliable.

The effect of water content on the physical properties of protein materials is important, and the data presented in Table II show that the tensile strength of carbamido casein ranges from 10,600 p.s.i. for a 6.3% water content down to 2050 p.s.i. for 25% water. When the results are plotted, they reveal a fairly close inverse relationship over the range studied. At the higher concentrations of water, 19.2 and 25%, the breaking elongation is pronounced, and the specimen is soft and flexible. These findings are qualitatively in line with the well-known reduction of tensile strength by plasticizers in general.

(*Please turn to page* 290)

[12] "Tentative method of test for tensile strength of molded electrical insulating materials." A.S.T.M. Designation: D 651-42T.

Table IV.—Physical Properties of Plastics Molded from Formaldehyde-Hardened Casein and Carbamido Casein

Exp. No.	*KCNO per 100 g. casein*	*Hardened with CH_2O*[a]	*A.S.T.M. 24-hr. water absorption*	*Approx. satn. water content*	*Tensile strength*	*Flexural strength*
	g.		*%*	*%*	*p.s.i.*	*p.s.i.*
C-96	0	None[b]	31.7	42.9	.....	.....
C-30	0	Solution, 1-step[b]	15.3	33.8	9250	8,600
C-45	0	Solution, 2-step[b]	17.8	33.8	9260	9,740
C-59	0	Solution, 1-step and suspension[a]	17.9	32.6	9840	9,200
C-13	5	Solution, 2-step	11.7	29.7	9550	10,500
C-43	5	Solution, 2-step	10.2	28.9	9200	9,490
C-10	10	Solution, 2-step	7.2	25.9	9350	7,600
C-42	10	Solution, 2-step	7.8	26.6	9210	9,490
C-20	10	Solution, 1-step	8.1	27.4	9710	10,300
C-26	15	Solution, 1-step	7.3	25.3	9180	10,400
C-27	10	Suspension	5.1	24.4	9860	8,900
C-16	10	None	8.1	27.9	8260[c]	11,200
C-35	10	None	6.0	27.0	5480[c]	7.890

[a] For solution-hardened material, the concentration of formaldehyde was 4%; for suspension-hardened material it was 10 percent.
[b] Control: The casein was dissolved in alkali and treated in exactly the same manner as in the procedure with potassium cyanate except that none of this reagent was added.
[c] These two values are from two separate sets of moldings, and each value is the average of 12 measurements. The individual values are erratic and undoubtedly low because of the tendency of the specimen to develop cracks during its preparation and conditioning.

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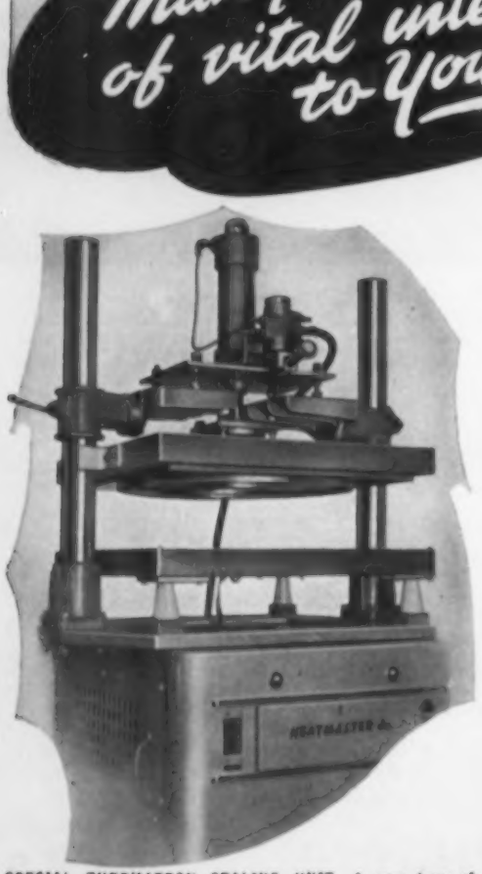

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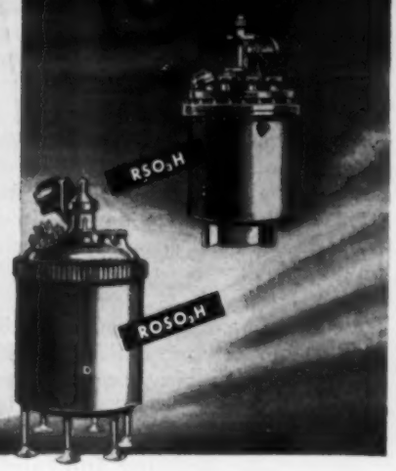

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CELLULOSE . . . ITS HISTORY, GROWTH, AND INFLUENCE. M. Heath. Chem. Ind. *62*, 405-12 (Mar. 1948). The history, properties and applications of cellulose are reviewed.

APPLICATION RESEARCH IN THE THERMOPLASTICS INDUSTRY. R. H. Boundy and W. C. Goggin. Chem. Eng. News *26*, 1220-2 (Apr. 26, 1948). The organization and operation of a laboratory and service force for thermoplastics is described.

DEVELOPMENT OF THERMOSETTING PLASTICS. V. E. Meharg. Chem. Eng. News *26*, 1282-3 (May 3, 1948). The development of fundamental knowledge concerning thermosetting resins is needed. In spite of this lack however, the thermosetting plastics industry is growing rapidly.

DUCKS. Canadian Plastics *6*, 18, 20 (Feb. 1948). A plastic composition used for molding toys is made of woodflour, cornflour, a natural resin and a thermosetting resin.

Molding and fabricating

STRETCH ORIENTATION OF POLYSTYRENE AND ITS INTERESTING RESULTS. J. Bailey. India Rubber World *118*, 225-31 (May 1948). The stretch orientation of polystyrene and the results obtained are described. Orientation is the cause of many of the peculiar properties of styrene. It may be advantageous or detrimental, depending on its amount and direction and the article. Orientation and the associated birefringence enable much useful information on the manufacturing process and the strength of the article itself to be gathered from a study in the polariscope. The mechanism of orientation is not completely understood. Very small fibers and very small sheets seem to possess inordinately great strength. Cold stretching up to 60% in thin sheets and 80% in small fibers may be developed by hot orientation and controlled relaxation, but such pieces do not show maximum strength.

RECENT DEVELOPMENTS IN RUBBER AND PLASTICS MACHINERY. E. S. Thompson. India Rubber World *118*, 209-15, 223 (May 1948). Recent developments in equipment for processing rubbers and plastics are reviewed.

Applications

PHENOLIC RESIN GLUES FOR PLYWOOD. F. G. Sawyer, T. S. Hodgins, and J. H. Zeller. Ind. Eng. Chem. *40*, 1011-18 (June 1948). The synthesis of phenolic resin glues, the comparative properties of various types of plywood glues, the formulation of phenolic resin plywood glues, and the manufacture of plywood are reviewed in detail.

LATEX COMPOUNDS FOR PAPER INDUSTRY. E. G. Partridge. India Rubber World *118*, 221-3 (May 1948). The properties, uses, and application of rubber and plastic latex compounds for coating paper are described. Saran, polyvinyl chloride, polyvinyl butyral, and the various synthetic rubber latex compounds are used.

HEAT-SEAL PAPERS. H. W. Taylor. Modern Packaging *21*, 149-51, 186 (May 1948). Dry labeling and heat-sealing packages with thermoplastic adhesives are discussed.

SYNTHETIC RUBBERS AND RESINS AS INSULATION FOR WIRES AND CABLES. J. T. Blake. India Rubber World *118*, 216-18 (May 1948). The properties of wire and cable insulation made of GR-S, butyl rubber, neoprene, silicone rubber, polyvinyl chloride, polyethylene, and Teflon are compared. Each has its own particular place in this field. None of them are satisfactory in all properties and applications.

Synthetic rubber

CUMENE HYDROPEROXIDE IN REDOX EMULSION POLYMERIZATION. E. J. Vandenberg and G. E. Hulse. Ind. Eng. Chem. *40*, 932-7 (May 1948). A redox system consisting of cumene hydroperoxide (α, α-dimethylbenzyl hydroperoxide), a reducing sugar and iron pyrophosphate was found to be remarkably effective for initiating emulsion polymerization with disproportionated rosin soap emulsifier. It gave 10 to 20-fold faster polymerization rates for a variety of vinyl compounds—styrene, methyl methacrylate, butadiene, butadiene-styrene, butadiene-acrylonitrile, and vinyl chloride—than did the conventional potassium persulfate initiator. In addition, it was superior to similar redox systems based on the common peroxides and per salts. The polymerization rate curves were linear and free from induction periods. The copolymerization of butadiene and styrene (GR-S) with this system gave 72% conversion in 2 hr. at 40° C. or in 23 hr. at 15° C. The mercaptan (thiol) modifier was not required for the initiation process, but it was necessary to obtain a soluble and processable rubber. Laboratory tests indicated that the physical properties of the synthetic rubber prepared at either 40 or 15° C. were similar to commercial GR-S-10.

Properties

INFLUENCE OF CLOUD POINTS OF COUMARONE-INDENE RESINS ON THEIR USE IN RUBBER COMPOUNDING. P. B. Stickney, L. E. Cheyney, and P. O. Powers. Ind. Eng. Chem. *40*, 267-71 (Feb. 1948). Coumarone-indene resins of varying cloud points and melting points were investigated in several rubbers. It is found that the cloud point is more reliable than melting point as an index of the plasticizing action of the resin. There is a critical cloud point, varying with the rubber, at which no change of plasticity occurs over a limited concentration range.

MECHANICAL PROPERTIES OF HONEYCOMB STRUCTURES MADE OF RESIN-IMPREGNATED PAPER. C. B. Norris and G. E. Mackin. National Advisory Committee for Aeronautics Technical Note No. 1529, 39 pages (May 1948).

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Chemistry

NEW SYNTHESIS FOR α-METHYLSTYRENES. G. B. Bachman and H. M. Hellman. J. Am. Chem. Soc. *70*, 1772-4 (May 1948). A new synthesis of α-methylstyrenes was developed which involves the catalytic condensation of aromatic compounds with propylene chlorohydrin and the dehydrohalogenation of the resulting halopropylated derivatives. Several new α-methylstyrenes were prepared and copolymerized with butadiene, methyl methacrylate, styrene, and maleic anhydride.

Testing

DETERMINATIONS OF ASPHALTENES, OILS, AND RESINS IN ASPHALT. R. L. Hubbard and K. E. Stanfield. Anal. Chem. *20*, 460-5 (May 1948). A method is described for the quantitative determination of the three groups of constituents—asphaltenes, oils, and resin—in petroleum and native asphalts. The asphaltene (benzene-soluble, pentane-insoluble) fraction is obtained by extracting the asphalt with *n*-pentane. The pentane-soluble portion is further fractionated by adsorption on an anhydrous alumina and extraction first with pentane to obtain the oil fraction and then with a methanol-benzene solution to obtain the resin fraction. In contrast to most proposed methods, the three asphalt constituents are recovered and may be used for further study. A complete analysis can be made in one 8-hr. day after the sample has been dispersed in pentane and allowed to stand approximately 12 hr. or overnight.

DISCUSSION OF PAPER ON THE IGNITION TEMPERATURE OF RIGID PLASTICS. N. P. Setchkin. A.S.T.M. Bull. No. 151, 66-69 (Mar. 1948). Discrepancies in ignition temperature of rigid plastics as determined by different test procedures are reported and discussed. A new method of test is described.

Materials

PROPERTIES OF FILLERS IN VINYL PLASTICS. R. L. Moore. India Rubber World *118*, 232-4 (May 1948). The effects of fillers on the properties of vinyl plastics are reported. The finer particle-size fillers increase the tensile strength of vinyl plastic stocks. The coarser fillers act as diluents; the higher their volume loadings, the lower the tensile strength obtained. Mar resistance is a function of particle size; the stocks containing the finer fillers give excellent resistance; those with coarser fillers, even in low concentrations, show definite marring.

PREPARATION AND POLYMERIZATION OF *m*-CYANOSTYRENE. R. H. Wiley and N. R. Smith. J. Am. Chem. Soc. *70*, 1560-1 (Apr. 1948). *m*-Cyanostyrene was prepared from *m*-cyanobenzaldehyde through *m*-cyanocinnamic acid and polymerized to a brittle, transparent polymer.

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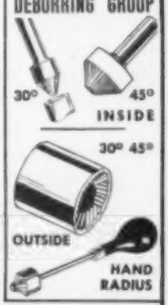

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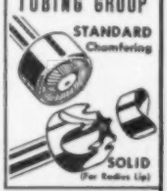

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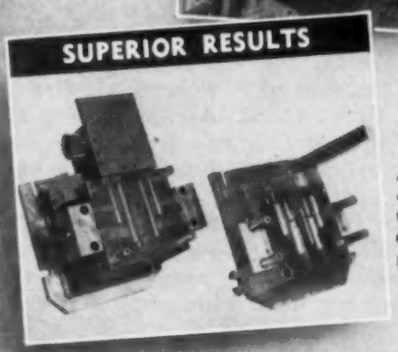

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U.S. PLASTICS PATENTS

Copies of these patents are available from the U. S. Patent Office, Washington, D. C., at 25¢ each.

SILVERED PLASTICS. R. A. Gaiser and P. T. Mattimoe (to Libbey-Owens-Ford Glass Co.). U. S. 2,439,654, Apr. 13. Plastic surfaces are exposed to vapors of a group four tetrachloride and treated with a mixture of a silvering solution and a reducing solution.

INSULATION. K. N. Mathes (to General Electric Co). U. S. 2,439,667, Apr. 13. A laminated electrical insulation panel made with a core of phenolic resin impregnated cloth and face sheets of asbestos impregnated with an orthophosphoric compound.

SILICON RESINS. B. W. Nordlander (to General Electric Co.). U. S. 2,439,669, Apr. 13. Improving craze resistance of methyl polysiloxane resin by chlorinating in solution in the presence of ultra-violet radiation.

COATING. C. L. Shapiro (to Lynnwood Laboratories, Inc.). U. S. 2,439,677, Apr. 13. A coating comprising a solution of polyvinyl halide and a hydroxypolycarboxylic acid stabilizer.

HOLLOW WARE. R. W. Canfield, F. E. Wiley, and A. M. Guerreiro (to Plax Corp.). U. S. 2,439,716, Apr. 13. Applying layers of oriented polymer on a form together with overlapping curved layers, heating until coalesced and restraining recovery of said layers.

RESIN. F. Rostler and L. Bornstein (to Wilmington Chemical Corp.). U. S. 2,439,824, Apr. 20. Thermosetting resin made by condensing phenol, formaldehyde, unsaturated and saturated hydrocarbons, and rosin.

SILICONE POLYMERS. R. R. McGregor and E. L. Warrick (to Corning Glass Works). U. S. 2,439,856, Apr. 20. A liquid cyclic polymer of dimethyl silicone.

WATER-SOLUBLE TEXTILE. R. P. Roberts (to Celanese Corp. of America). U. S. 2,439,865, Apr. 20. Impregnating a cellulose fabric with 35% caustic and subsequently treating with first acrylonitrile, then methyl chloride.

INSULATION. C. F. Hill and R. W. Auxier (to Westinghouse Electric Co.). U. S. 2,439,929, Apr. 20. Arc splitters, in an electrical device, composed of molded melamine-aldehyde resin filled with asbestos fibers.

SHEET MATERIAL. I. L. Lesavoy. U. S. 2,439,939, Apr. 20. Rolling a continuous sheet of plastic material with an extruded bead of undercut cross-section superimposed thereon.

THERMOSETTING RESINS. J. Swiss and N. C. Foster (to Westinghouse Electric Corp.). U. S. 2,439,953, Apr. 20. Fibrous sheets laminated with the reaction product of a vinyl aryl compound, and as plasticizer, the reaction product of an unsaturated acid with castor oil.

MOLDING. R. W. Dinzl (to Watson-Stillman Co.). U. S. 2,439,966, Apr. 20. A high frequency device for heating plastic material prior to injection molding.

PLASTIC SHEET. N. J. Brown. U. S. 2,440,039, Apr. 20. Puckered sheet prepared by applying a solution of vinyl resin to a preformed sheet of a cellulose compound.

OPTICAL FILTER. E. R. Blout and R. M. Gofstein (to Polaroid Corp.). U. S. 2,440,070, Apr. 20. An ultra-violet light-filtering medium comprising cellulose acetate sheet with cinnamalazine dispersed therein.

POLYMERS. B. W. Howk and R. A. Jacobson (to E. I. du Pont de Nemours & Co., Inc.). U. S. 2,440,090, Apr. 20. An interpolymer of an alpha-methylene carboxylic acid fluoride with methyl methacrylate.

POLYMERS. M. Hyman, Jr. and P. H. Johnson, Jr. (to Polaroid Corp.). U. S. 2,440,092, Apr. 20. Cyclohexyl alpha-ethoxy acrylate and polymers thereof.

TERPENE DERIVATIVES. W. O. Israel (to Industrial Rayon Corp.). U. S. 2,440,093, Apr. 20. A water-dispersible reaction product of an alkylene oxide with a mixture of unsaturated and hydroxy terpenes.

FILM. E. H. Land, M. Grabau, J. Mahler, and M. Hyman, Jr. (to Polaroid Corp.). U. S. 2,440,102-6, Apr. 20. A film comprising a support and a single image-carrying layer of transparent, oriented, linear polymer in combination with a dichroic material incorporated in predetermined portions of said layer.

FILM. T. R. Sterck (to Polaroid Corp.). U. S. 2,440,-125, Apr. 20. A film of oriented linear polymer superposed upon another film, said films carrying a main light polarizing image and an auxiliary image.

WINDSHIELD. C. J. T. Young (to Polaroid Corp.). U. S. 2,440,133, Apr. 20. An automobile safety windshield, the interlayer comprising a plastic layer possessing birefringence.

CIGARETTE CASE. E. L. Beckwith (to Beckwith Manufacturing Co.). U. S. 2,440,164, Apr. 20. A transparent resilient plastic cigarette case.

PICKER STICK. G. J. Muller (to Taylor Fibre Co.). U. S. 2,440,181-2, Apr. 20. A picker stick having a body portion of strips of phenol fibre, a facing strip, and a rubber portion between the face and the body.

POLYTETRAFLUOROETHYLENE. J. Alfthan (to E. I. du Pont de Nemours & Co., Inc.). U. S. 2,440,190, Apr. 20. Forming a slurry of finely divided polytetrafluoroethylene, sedimenting the solids, removing excess liquid, pressing, and sintering at 327° C.

CELLULOSE ESTERS. J. H. Klaber and J. Bjorksten (to Quaker Chemical Products Corp.). U. S. 2,440,201-2, Apr. 20. A solid cellulose ester or ether containing ammonium thiocyanate or thiourea which serves as fire retardant.

(*Please turn to the next page*)

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exclusive *Award Winner,*

SEVENTH MODERN PLASTICS COMPETITION

Hardware Classification

Supplex Garden Hose was the only garden hose chosen — in fact the only product in the Hardware Classification that received an award.

In the Competition there were over 7,000 items in 1,300 entries and only 30 winners in all classifications.

The judges liked the light weight, silvery-grey color, ribbed surface and meticulous detail to package, display and informative labeling.

But Supplex Garden Hose of Elastron plastic is only one of the outstanding products which we extrude in large quantities. Other Elastron products include Elastron ladies' and men's belts, Elastron Clothesline with high tenacity rayon core, Elastron extrusions for women's shoes, luggage, suspenders, handbags, appliance bumpers, etc.

If you want a flexible polyvinyl plastic in widths up to 12", investigate ELASTRON.

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Elastron Clothesline contains sparkling white Elastron plastic jacket over a high tenacity rayon core. Withstands over three hundred pounds pull. Won't rot, sag, peel or crack.

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ELECTRIC MANUFACTURING COMPANY
1328 N. 23d St. St. Louis 6, Mo.

POLYMERS. D. E. Adelson and H. Dannenberg (to Shell Development Co.). U. S. 2,440,237, Apr. 27. Resinous polymers of unsaturated ethereal esters.

THERMOPLASTIC. H. Dreyfus (to Celanese Corp of America). U. S. 2,440,256, Apr. 27. Methyl methacrylate is polymerized in aqueous acetone solution containing a plasticizer and a peroxide catalyst.

POLYMERIZATION. F. T. White and A. J. Daly (to Celanese Corp. of America). U. S. 2,440,318, Apr. 27. Methyl methacrylate is polymerized in aqueous acetone solution containing hydrogen peroxide.

MOLDING. R. A. Myers (to Warren Plastics Corp.). U. S. 2,440,376-7, Apr. 27. Devices for plastic molding machines.

POLYMERIZATION. W. J. Sparks and R. M. Thomas (to Standard Oil Development Co.). U. S. 2,440,494, Apr. 27. Solvent polymerization of butadiene in the presence of methallyl chloride below 0° C.

THERMOPLASTIC SHAPING. R. S. Ames, R. W. McCullough, and M. P. H. Peterson (to Goodyear Aircraft Corp.) U. S. 2,440,499, Apr. 27. A jig for forming streamlined canopies for airplanes from thermoplastics.

ARCH SUPPORTS. W. L. Gould. U. S. 2,440,508, Apr. 27. Device for forming a plastic by shaping with the foot.

CONDENSATE. E. L. Kropa (to American Cyanamid Co.). U. S. 2,440,516, Apr. 27. Resin formed by reacting a mono-alkylol amine, amino acid, and dicarboxylic acid.

BUILDING MATERIAL. J. H. Young and P. W. Jenkins (to H. H. Robertson Co.). U. S. 2,440,626, Apr. 27. An anti-stick coating film of methyl cellulose, glycerol, and the sodium salt of sulfated heptadecanol for surfacing bituminous coatings.

CONDENSATES. J. T. Thurston (to American Cyanamid Co.). U. S. 2,440,669, Apr. 27. A granular water-insoluble composition comprising the condensate of formaldehyde and sodium 1-(o-hydroxyphenyl)-3-ketobutane sulfonate.

COATED METHACRYLATE. M. F. Bechtold (to E. I. du Pont de Nemours & Co., Inc.). U. S. 2,440,711, May 4. Treat with a solution of ethyl silicate hydrolyzed with water and a polyvinyl butyral resin, heat to 140 to 175° C., cool, treat with ethyl silicate and a vinyl acetate polymer, and repeat process.

LINED PIPE. C. G. Munger (to American Pipe and Construction Co.). U. S. 2,440,725, May 4. Pipe is coated internally by inserting an adhesively coated plastic tube and bonding with hydrostatic pressure and heat.

POLYVINYL ACETAL. G. S. Stamatoff (to E. I. du Pont de Nemours & Co., Inc.). U. S. 2,440,730, May 4. In polyvinyl butyral preparation, the method of forcing aqueous liquor continuously through the reaction zone.

MOLDING. E. van der Pyl (to Agicide Laboratories, Inc.). U. S. 2,440,789, May 4. Molded products from resin-bearing vegetable shell material.

OLEFIN POLYMERS. W. E. Hanford and R. M. Joyce (to E. I. du Pont de Nemours & Co., Inc.). U. S. 2,440,800,

Like the rabbit, "Harvey"... this plastic part, too, plays an unseen role!

It serves as a Float Housing in the New, Edelmann automotive FREEZ-O-TECTOR. Its place in the final product assembly is within the cylindrical walls of the metal jar . . . Though unseen, it is essential to the operation and accurate performance of the instrument!

Whether your plastics project be proven or new . . . simple or involved . . . for hidden service or for show, the Consolidated Way offers you a custom molding service custom-tailored to the need. Our experienced engineering staff welcomes the opportunity to sit in with product designers and manufacturers. Inquiries invited!

FLOAT HOUSING

A molded example of the plunger molding method. Processed of high impact, high strength black phenolic laminate molding compound held to molding, close tolerance. Removable oscillator pin-mated incorporating both internal and adjacent threads in the one molding operation.

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★ *With apologies to "Harvey" Broadway's year-in and year-out stage hit production.*

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May 4. Reaction products of a polymerizable monoolefinic aliphatic hydrocarbon and a saturated halogenated hydrocarbon.

POLYMERS. W. E. Hanford and J. Harmon (to E. I. du Pont de Nemours & Co., Inc.). U. S. 2,440,801, May 4. Polymers prepared by heating a compound having recurring olefin groups, hydrogen chloride and a peroxy catalyst.

ELECTRICAL CONDUCTORS. C. J. Krogel (to Western Electric Co., Inc.). U. S. 2,440,802, May 4. A conductive core coated with an aqueous emulsion of polyvinyl alcohol, polyvinyl acetate, methyl methacrylate polymer and pulp fibers.

TIRE COVER. G. A. Lyon (to Lyon, Inc.). U. S. 2,440,805, May 4. A shell-like thermoplastic spare-tire cover.

POLYMERIZATION. H. T. Neher and F. J. Glavis (to Rohm and Haas Co.). U. S. 2,440,808, May 4. Complex hydrous magnesium silicate used as dispersing agent for polymerizing an aqueous suspension of an ethenoid compound.

DISPLAY RACK. W. J. van Wormer, Jr. and T. W. Hawkins (to McCormick Armstrong Co.). U. S. 2,440,814, May 4. A plastic display rack.

GARMENT SUPPORT. L. M. Hrachovina. U. S. 2,440,951, May 4. A plastic garment hanger.

COATING. J. W. Iliff and M. Torrey (to E. I. du Pont de Nemours & Co., Inc.). U. S. 2,440,953, May 4. An aqueous emulsion coating made with a drying-oil-modified alkyd resin.

VINYL RESINS. L. T. Sutherland (to Allied Chemical and Dye Corp.). U. S. 2,440,985, May 4. A vinyl resin plasticized with a high molecular weight maleate or derivative thereof.

CONDENSATE. J. Treboux and R. Bellvila (to J. R. Geigy A. G.) U. S. 2,440,988, May 4. Boiling in aqueous medium a condensate of equimolecular portions of dicyanodiamide and formaldehyde with an ammonium salt of mineral acid and 2 to 3 mols of formaldehyde.

POLARIZING MEDIUM. G. Georgian, W. F. Amon, Jr., R. Gofstein, E. H. Land, C. D. West, and R. B. Woodward (to Polaroid Corp.). U. S. 2,441,019, May 4. A light-polarizing sheet comprising a light-transmitting medium of cellulose ester with an oriented suspension of an acid periodide of dibenzacridine.

LUBRICATING COMPOSITION. R. G. Larson and K. E. Marple (to Shell Development Co.). U. S. 2,441,023, May 4. A lubricating composition comprising an oil with an allyl ester polymer dissolved therein.

BIREFRINGENT SHEET. C. D. West (to Polaroid Corp.). U. S. 2,441,049, May 4. A laminate of two sheets of molecularly oriented light polarizing plastic sheets.

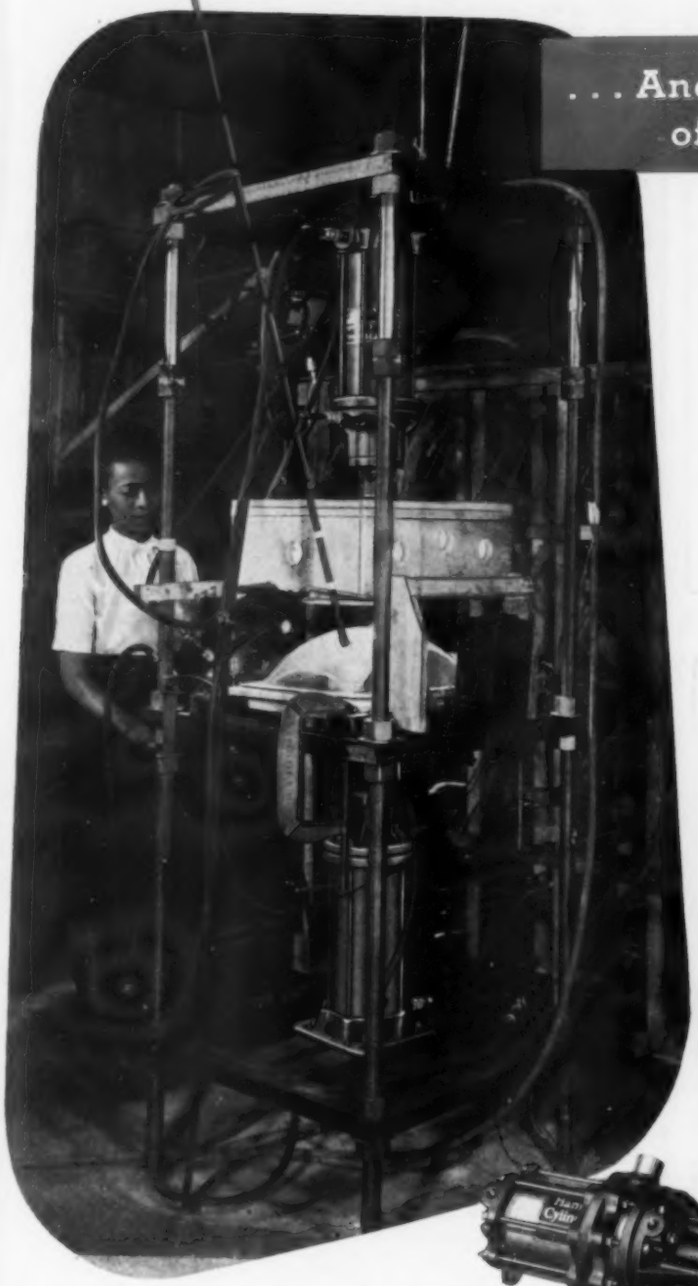
POLYAMIDES. T. Le S. Cairns (to E. I. du Pont de Nemours & Co., Inc.). U. S. 2,441,057, May 4. An N-alkoxymethyl polycarbonamide is reacted at 25 to 100° C. with an alkali metal salt for a time sufficient for it to be demethylolated.

(Please turn to next page)

Hanna Cylinders

GO TO WORK FOR TELEVISION

. . . Another of the 1001 applications of Hanna Cylinder Power



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All surfaces of acrylic must be free of "ripples"; the convex front surface cannot be free-formed—it must be rectangular; a full male die cannot be used because optical distortion would result.

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Applications in the plastics field include but a few of the 1001 uses for Hanna Cylinder Power throughout industry. Wherever there is a need for a controlled push, pull, lift, press or clamp, there is a need for Hanna Cylinders. They operate smoothly, economically, efficiently. They reduce or replace manual effort and simplify the actuation and control of thousands of machines of all types.

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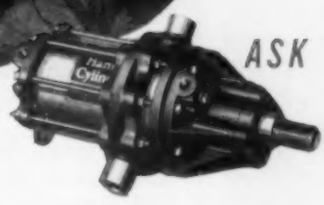

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Yes, indeed. ATLAS guarantees *all* of its products. We have been making regulating valves for nearly a half century now — *exclusively* — and every valve has been guaranteed. ATLAS products are so well made that failures are very rare. The body of this Type "E", for instance, is of forged steel. Above we told you about the stainless steel. A formed packing of special material superior to leather is used which is immune to all fluids commonly used in hydraulic machinery. The pressure on the seat is balanced by a piston with the result that variations in high initial pressure have little effect on the reduced pressure. Be sure to ask for complete data.

For other ATLAS plastics plant products see the partial list in our ad in the January 1948 issue of MODERN PLASTICS

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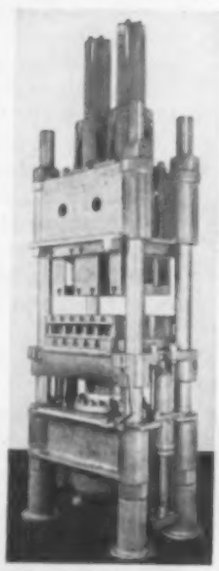
As this double ram transfer molding press has two sprues, the necessity of center gating single cavity molds is eliminated. This feature increases the possibilities for mold design where point of gating is important. It also means better and faster fills on pieces that have heavy sections covering large areas. If desired, only one ram may be used.

Several of these presses are in use at Hemco Plastics Division, Bryant Electric Co., Bridgeport, Conn.

We invite your inquiries.



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PRESS CO., INC.

331 West Water Street — Syracuse, New York

SILICON POLYMERS. W. E. Hanford (to E. I. du Pont de Nemours & Co., Inc.). U. S. 2,441,066, May 4. Reacting a polyhydroxy compound with a hydrocarbon silicane-halide.

POLYMER. D. H. Hewitt and F. Armitage. U. S. 2,441,-068, May 4. Polymers formed by heating polymethyl methacrylate with a drying oil diglyceride in the presence of an alcoholysis catalyst at 400 to 600° F.

POLYMERS. P. S. Pinkney (to E. I. du Pont de Nemours & Co,, Inc.). U. S. 2,441,082, May 4. Reacting a monoolefin carbon monoxide polymer with an alkaline or alkaline earth compound and formaldehyde.

NYLON FABRICS. A. K. Schneider (to E. I. du Pont de Nemours & Co., Inc.). U. S. 2,441,085, May 4. Elastic fabrics obtained by treating nylon fabric with a solution of pH below 3 containing formaldehyde, an aliphatic alcohol and an acid catalyst.

POLYMER. T. A. Te Grotenhuis and C. B. Frost (to General Tire and Rubber Co.). U. S. 2,441,090, May 4. Emulsion polymerizing a conjugated diolefin in the presence of a slurry of carbon black in water and milling same.

MOLDING. J. S. Hicks (to Owens-Corning Fiberglas Corp.). U. S. 2,441,097, May 4. Vacuum molding of deformable plastic material.

SILICON POLYMERS. J. F. Hyde (to Corning Glass Works). U. S. 2,441,098, May 4. Hydrolyzing a mixture of silanes with water in the presence of an alkali metal hydroxide and condensing to a polymer by dehydration.

PROTECTIVE COATINGS. B. M. Pineles (to United Shoe Machinery Corp.). U. S. 2,441,227, May 11. Method of spraying filaments across openings.

VINYL RESINS. R. M. Goepp, Jr. (to Atlas Powder Co.). U. S. 2,441,241, May 11. A hexitan tetra-ester for vinyl resins.

ORGANO-SILOXANES. J. F. Hyde (to Corning Glass Works). U. S. 2,441,320, May 11. Organo-siloxanes comprising silicon-oxygen chains with alkyl groups attached to silicon.

RUBBER HYDROCHLORIDE. H. J. Osterhof (to Wingfoot Corp.). U. S. 2,441,328, May 11. Dissolving rubber in a solvent, gassing to form rubber hydrochloride and preparing film.

VINYL POLYMERS. C. G. Kamin (to E. I. du Pont de Nemours & Co., Inc.). U. S. 2,441,360, May 11. Vinyl chloride-containing polymers subject to thermal decomposition are stabilized by mixing with an N-chlorohydantoin.

POLYVINYL ACETATE. T. S. Carswell (to Monsanto Chemical Co.). U. S. 2,441,470, May 11. Water-soluble hydrolyzed polyvinyl acetate is insolubilized by immersing in a bath of an unsaturated aldehyde, sulfuric acid, ethanol, and water.

MOLDABLE PLASTICS. A. W. Koon and J. P. Thatcher (to Columbian Rope Co.). U. S. 2,441,492, May 11. Moldable plastics prepared from dry mixtures of resin and filler web.

Cumberland Machines for the Plastics Industry

New!

CUMBERLAND ROTARY CHOPPING MACHINE

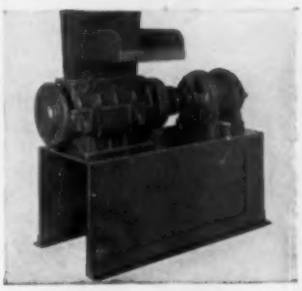
This machine cuts slab material from compounding mills, chops continuously extruded rods, sheets or strands, and cuts up calender roll side shear strips. This machine is also used in conjunction with extrusion machines to produce cube or pellet material suitable for a molding compound.

CUMBERLAND SLITTING & MANGLING MACHINE

This machine is useful primarily to manufacturers who compound plastic materials. The machine may be used to reduce material for use as a commercial product without further granulating. Or it may be used to prepare material for subsequent final reduction in a granulating machine.

CUMBERLAND PLASTICS GRANULATING MACHINES

These machines are designed especially for plastics. They perform with high efficiency the special cutting requirements of plastic materials. They are simple in design, rugged in construction and are easy to dismantle and clean. These machines are built in two styles. Nos. 0, ½ and 1½ as at top right (No. ½ is illustrated). Also, large 18" machine, double hung, with retractable knife block for complete accessibility. (Illustrated at right below.)



REQUEST CATALOGS

Plastics Granulating Machines.....No. 200
Slitting and Mangling Machine.....No. 300
Rotary Chopping Machine.....No. 400

CUMBERLAND ENGINEERING COMPANY, INC.

Dept. (A), Box 216, Providence, Rhode Island

free trial!

We'll prove Gypsy Plastic Dyeing is beautiful, practical. Send sample of plastic material and color desired. We'll dye it and include sample of Gypsy Plastic Cement to match. No obligation.

Gypsy

PLASTIC DYES . . . 2 types:

CONCENTRATES—New advanced type enables user to mix his own inexpensive cold or hot dip solutions as needed. Concentrates contain no volatile solvents so can be stored indefinitely without loss or deterioration. Ten standard clear, brilliant colors or combinations. Complete instructions furnished.

READY-TO-USE SOLUTIONS—Choice of ten standard beautiful colors or make your own combinations. Ready-to-use dyes for Acrylic, Acetate, Nitrate, Vinylite, Ethyl Cellulose. Available in pints, quarts, gallons.

New Gypsy Plastic Cement! Non-inflammable, non-explosive. Clear or colored weld, solvent type.

Write for Literature and Prices

GYPSY DYES, Inc.
Division of Wittie Mfg. Co., Inc.
1414 S. WABASH AVE., CHICAGO 5, ILL.

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FOR REINFORCING

PLASTICS

★

J.H. LANE & CO., Inc.

250 W. 57th St. • New York, N. Y.

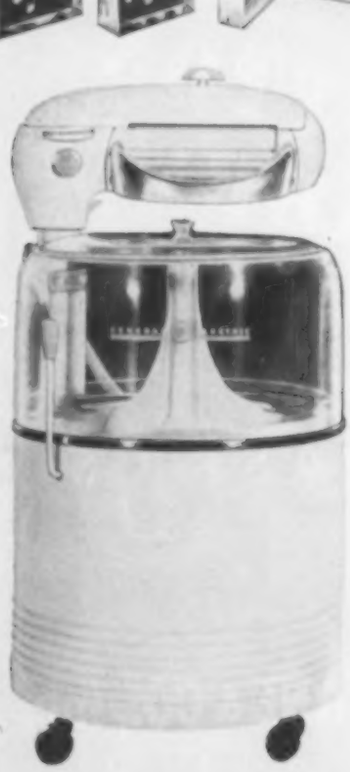
ROHM & HAAS C

6 MODERN PLASTICS AV

Whose Entries W

Winner in the Store & Business Equipment Group:
PLEXIGLAS light track, which transmits illumination from light source to indicator window in Toledo Guardian Scale, molded by American Insulator Company, New Freedom, Pa.

Winner in the Display Group:
Window display, including watches embedded in PLEXIGLAS, entered by Vernon-Benshoff Company, Pittsburgh, Pa., for the Hamilton Watch Company, Lancaster, Pa.



Winner in the Display Group:
Demonstration model of washing machine with tub and lid fabricated of PLEXIGLAS by Steiner Plastics Manufacturing Company, Long Island City, New York, for the General Electric Company, Bridgeport, Conn.

ROHM & HAAS

AS CONGRATULATES

CS AWARD WINNERS

ies Were Made of

PLEXIGLAS*

Winner in the Sign Group:
Flying Red Horse, fabricated of PLEXIGLAS by Steiner Plastics Manufacturing Company, Long Island City, New York, for Socony-Vacuum Oil Company, New York City. The mold for the Flying Red Horse was designed in collaboration with the Rohm & Haas Design and Fabrication Laboratory.

To the PLEXIGLAS users, whose entries won 6 out of the 30 awards in the Seventh Modern Plastics Competition, Rohm & Haas extends heartiest congratulations.

The fact that their entries were judged best in competition with thousands of other plastics products and applications makes their achievement truly outstanding. And the fact that their winning entries were made of Rohm & Haas PLEXIGLAS is a source of pride to us.

*PLEXIGLAS *is a trade-mark, Reg. U. S. Pat. Off.* PLEXIGLAS *acrylic resin sheets, rods, and molding powders are manufactured only by Rohm & Haas.*

Winner in the Lighting Group:
Etched and lighted wall panels fabricated of PLEXIGLAS by Endicott Corporation, Boston, Mass.; designed and marketed by Lightolier Inc., 11 East 36th St., New York City.

Winner in the Scale Model Group:
Kitchen equipment models fabricated of PLEXIGLAS by Regal Plastic Company, Kansas City, Missouri, for Hotpoint, Inc., Chicago, Ill.

COMPANY

WASHINGTON SQUARE
PHILADELPHIA 5, PA

To all users of plastic film

when you buy... specify

PRESTOFLEX

VINYL PLASTIC FILM

. . . for better performance . . . for better profits!

WHEN YOU BUY plastic film you have the right to insist on a "sure thing" in manufacture, with sales and value appeal . . . quality, beauty, durability.

SPECIFY a vinyl plastic film that has the Big Six film features, as well as unlimited range of colors (including the new metallic shades) first grade ingredients and a price that will allow you a better profit.

PRESTOFLEX VINYL PLASTIC FILM has all these features — plus! It is tested continually during manufacture. It can be printed in confined patterns at our own printing plant. We offer free labels with manufacturers' names imprinted, for finished products. And our expert chemists are at your service, to help you meet specific plastic needs and solve your manufacturing problems — without obligation.

• waterproof • stain-resistant
• will not crack or peel • made of virgin resin only
• non-inflammable • laboratory tested and approved

AVAILABLE
.004 gauge and heavier
36" to 54" width

VISIT US AT THE
NATIONAL PLASTICS EXPOSITION
SEPT. 27 to OCT. 1 • BOOTH 279
GRAND CENTRAL PALACE, NEW YORK

Prestoflex Is An Exclusive Product of
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MANUFACTURERS OF VINYL PLASTIC FILM
40 WORTH ST., NEW YORK 13 · WORTH 2-2107 · FACTORY: BROOKLYN, N. Y.
An Affiliate of J. P. Frank & Co., Inc.

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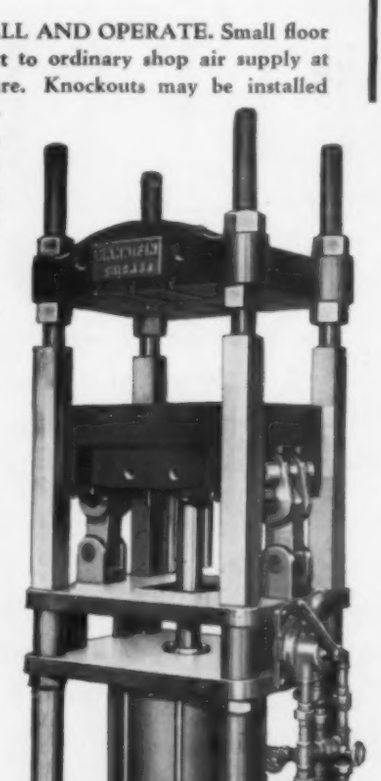
Designed and Built to help YOU solve your molding problems

• ADVANCED DESIGN. Hannifin molding press design is the product of more than thirty years of specialized experience. There is a difference. Hannifin presses—down to the last detail—are DESIGNED TO DO THE JOB!

• FASTER MOLDING. Exclusive Hannifin operating cycle for compression molding of small parts in multiple cavity molds; Rapid advance stroke . . . short power stroke at full capacity . . . rapid return stroke with full power to open molds. Operating speeds are adjustable.

• EASY TO INSTALL AND OPERATE. Small floor space needed. Connect to ordinary shop air supply at 80 to 100 lbs. pressure. Knockouts may be installed for top or bottom operation. Ideal for multiple unit installation —one man can handle as many as five presses depending on type of work.



DO YOU NEED PRESSES IN A HURRY?

DESPITE continued heavy demand for Hannifin platen presses, current delivery schedules are good. If you have to have presses in a hurry wire or write the Hannifin factory.

• Model L-207 (illustrated); 50 tons capacity.

• Model L-208; 15 tons capacity.

See your local Hannifin representative for complete specifications and information, or write HANNIFIN CORPORATION, 1101 So. Kilbourn Ave., Chicago 24, Ill.

PLATEN PRESSES

IN CUSTOM MOLDING IT'S

TECH-ART

PLASTICS COMPANY

In *custom molding*—experience makes the difference...TECH-ART has been in business since 1891.

In *custom molding*—TECH-ART offers you...

1. *Engineering skill* . . . practical solutions to all plastic problems.
2. *Die making* . . . TECH-ART makes its own molds and dies . . . in its own shop.
3. *Mass production*...modern high-speed automatic and semi-automatic molding equipment capable of producing in any desired quantities.
4. *Rounded production experience* . . . a background in molding plastic products for many different industries.
5. *Complete service* . . . engineering, die making and molding . . . over 100 molding presses . . . all under one roof...with TECH-ART supervision and craftsmanship from start to finish.

Dry cleaning agitator—weight 11 lbs.
Mold weighs a ton.

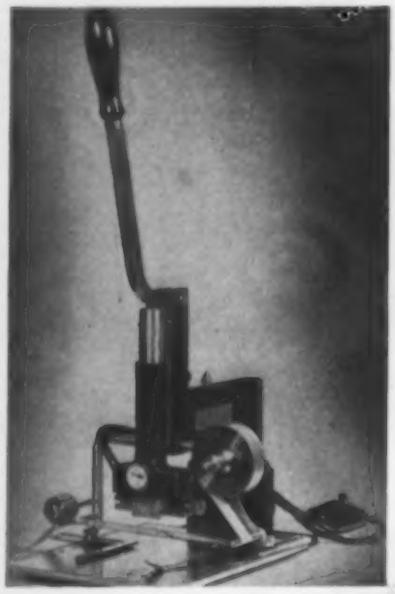
WHEN YOU WANT BETTER COMPRESSION, PLUNGER-TRANSFER, AND INJECTION MOLDING—BETTER CALL TECH-ART!

TECH-ART PLASTICS COMPANY
41-01 36th Avenue, Long Island City 1, N. Y.
Successors to Boonton Rubber Company
Pioneer Plastic Molders—Established 1891

Consult your telephone directory for TECH-ART representative located in the following cities:
Cincinnati • Cleveland • Columbus, Ohio • Detroit
Philadelphia • Rochester • Washington, D. C.

NEW MACHINERY AND EQUIPMENT

Hot press—Electromark #30, which will stamp on leather, leatherette, paper, plastics, wood, etc., in thickness of 0 to 1¼ in., has been announced by Gane Brothers and Lane, Inc., 1335 W. Lake St., Chicago, Ill. For monograms and full names, it will take dies up to 1 by 2⅝ inches. A special designed leaf-retainer takes any standard 200 ft. roll of leaf and keeps it taut. A cam action on the handle gives maximum pressure with minimum effort. The press has a platen 8 by 9½ in. and a throat capacity of 5½ inches. Gane Brothers and Lane, Inc., is the authorized distributor for the Electromark #30 and as such, carries them in stock and on display for demonstration purposes.



Arbor press and vise—The Bellows Co., Akron, Ohio, has added a Model BAP-20 arbor press and a Model DVH-150 air-hydraulic vise to its line of Controlled-Air-Power devices. The press, which is suitable for light to medium pressing operations such as forming, flaring, stamping, crimping, riveting, as well as light broaching operations, may be used on any line pressure ranging from 5 to 175 p.s.i. Its stroke length is adjustable from a fraction of an inch to 2½ in. and the maximum clearance of the 1¼-in. diameter ram shaft is 7 inches. The air cylinder may be adjusted vertically in steps of 1½ inch. The 8 by 9-in. table has a 5-in. throat clearance.

The vise develops a clamping pressure of 150 times the operating air line pressure from any air line pressure up to a maximum of 125 pounds. Measuring 30 3/16 in. long, 9 in. high, and 6⅛ in. high, this vise has steel jaws which can be opened from a fraction of an inch to a maximum of 5 in. in increments of 1/32 of an inch.

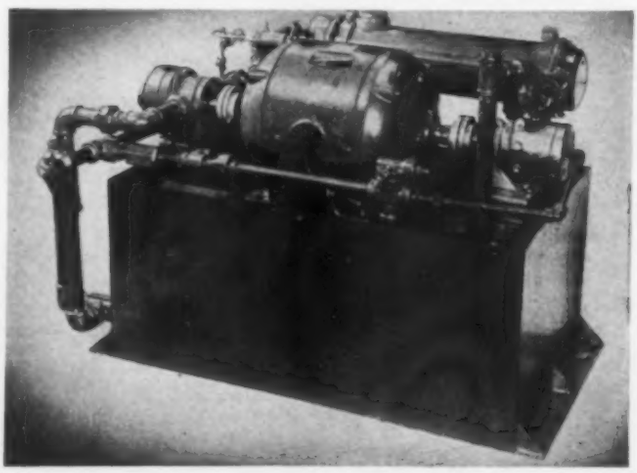
Stripe coloring machine and rotary embossing machine—Ackerman-Gould Co., 92-96 Bleecker St., New York 12, N. Y., has adapted two standard machines in the leather goods industry to meet the requirements in the plastic industry for printing stripes and embossing extruded vinyl. They are a stripe coloring machine and a belt and strap rotary embossing machine. The stripe machine can apply uniform single or multiple stripes to plastic belting at the rate of 15 ft. per minute. According to the company, the embossing machine can emboss 30 gross belts or straps per 8-hr. day. It has 3 in. diameter embossing rollers and the width of embossing space is 7 inches.

Rod and wire marking unit—A new marking machine, No. 14, which is said to mark at the speed of production on plastic, steel, iron, brass, lead rods, tubes, or cables, has been announced by the Acromark Co., 365 Morrell St., Elizabeth 4, N. J. It consists of a ball bearing marking roll carrying engraved steel segment dies. These dies are held in place by a face plate with a flange. Elongated screw holes permit easy changing of segment dies.

Disk grinder—A 24-in. Master disk grinder featuring a reversible disk for right or left hand jobs has been introduced by the Kindt-Collins Co., 12653 Elmwood Ave., Cleveland 11, Ohio. This grinder can be quickly adjusted by means of a counterbalanced table which can be moved up or down 11 in. by hand pressure. A 5-in. hole in the back of the machine permits house suction system or dust collector attachments.

Flexible shaft machine—The Elliott Mfg. Co., Binghamton, N. Y., has announced a new improved flexible shaft machine which features a new type countershaft mounting. The countershaft includes a vertical adjustment for belt tensioning, operating on a lead-screw principle, with finger-tip knob control. With a standard 3 or 4-step cone-pulley on the motor shaft, the vertical adjustment is operative through over 4 inches. By substituting an optional variable-pitch pulley for the cone-pulley on the motor shaft, the vertical adjustment provides stepless speed variation through a ratio of over 2:1. The machine also has an improved hinged guard and a simplified toggle switch mounting.

Dual pumping unit—The Universal Hydraulic Machinery Co., 285 Hudson St., New York, N. Y., is now in production on a new dual pumping unit. This is a completely self-contained system with the pumps and motors mounted directly on the oil reservoir. The reservoir is equipped with an oil cooler. This unit is



powered with a 7½-10 hp. motor. The low pressure pump has a capacity varying from 12 to 40 gal. per minute. The high pressure pump will deliver 3½ to 5 gal. per min. at a pressure of 3000 p.s.i. This dual pumping unit with oil cooler should be satisfactory for application to self-contained compression and injection molding machines. (*Turn to next page*)

PROTECT YOUR PRODUCTS DURING SHIPMENT *with*

S·S·White PLASTIC DUMMY SHIPPING PLUGS AND CAPS

HEX. SOCKET TYPE PLUGS FOR N.P.T. PIPE THREADS

PLAIN TYPE PLUGS FOR N.P.T. PIPE THREADS

SHOULDER TYPE PLUGS FOR MACHINE SCREW THREADS

TYPE C CAP NUTS FOR MACHINE SCREW THREADS AND N.P.T. PIPE THREADS

Made of tough, non-brittle plastic. Available from stock molds in a wide range of sizes. Details in *BULLETIN* P-4601. Copy mailed on request.

CONTRACT MOLDING *in all standard thermoplastic and thermosetting materials.*

S.S.WHITE PLASTICS DIVISION

THE S. S. WHITE DENTAL MFG. CO. — DEPT. M, 10 EAST 40th ST., NEW YORK 16, N. Y.

FLEXIBLE SHAFTS • FLEXIBLE SHAFT TOOLS • AIRCRAFT ACCESSORIES
SMALL CUTTING AND GRINDING TOOLS • SPECIAL FORMULA RUBBERS
MOLDED RESISTORS • PLASTIC SPECIALTIES • CONTRACT PLASTICS MOLDING

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NATION'S LARGEST SUPPLY HOUSE *for* PLASTICS MATERIALS, SUPPLIES & ACCESSORIES

Serving . . . MANUFACTURERS, DESIGNERS, FABRICATORS, MODEL MAKERS and the HOME CRAFTSMAN.

PLEXIGLAS and LUCITE in sheets, rods, tubes all colors, thicknesses, sizes.

CUSTOM CUT SHAPES (flat, round, etc.)

CASTING PLASTICS (opaque and crystal clear)
FLEXIBLE MOLD MATERIALS.

POLYSTYRENE RODS, POLYETHYLENE & VINYL FILMS

INTERNAL CARVING DRILLS, MOTORS and ACCESSORIES

DYES — CEMENTS — CLEANERS — GLAZES — BUFFS — POLISHES (for all plastics).

These and many other items fully described in our latest FREE catalogue — sent on request.

NO ORDER TOO LARGE NOR TOO SMALL FOR IMMEDIATE DELIVERY

FRY PLASTICS CO.
7608 South Vermont Ave., Los Angeles 44, California

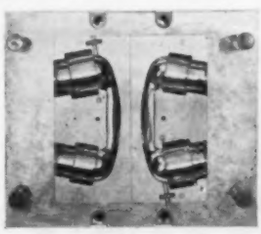
WHAT'S WRONG WITH THIS PHONE!

Not a thing, Mister!

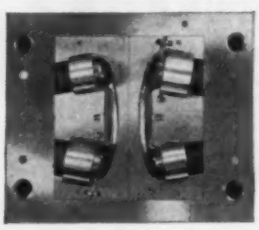
As far as we're concerned, it's *perfect*. (But if you're trying to make a call . . . sorry, it's not hooked up!)

You see, our job (here at Newark Die Company) was to machine the molds for this phone. We did the work for I. T. & T.'s Argentine subsidiary, who manufacture up-to-date equipment for the country's modern telephone system.

Specifications for this job were received in metric system—and were then translated into linear for the sake of precision. Once accomplished, skilled craftsmen at The Newark Die Company proceeded to produce a set of molds exemplary of our high-quality workmanship.



TOP HALF OF MOLD



BOTTOM HALF OF MOLD

In our 25 years of serving the plastic industry, we've turned out thousands of compression, transfer, and injection type molds—*and to perfection.* That's why we're qualified to solve any multiple-cavity-mold problem you may have.

If you need our help (or just thinking), we'd like to talk with you.

Just tear out this coupon and mail it to us.

(MP 9-48)

Please send me a free copy of "The Procedure of Die Hobbing."

Name..... Title.....

Company.....

Address.....

City..... State.....

NEWARK DIE COMPANY

22 SCOTT STREET — NDC TRADE MARK — **NEWARK 2, N. J.**

We are very pleased to announce the opening of our new facilities for producing beryllium copper cavities and cores and any other of your high precision casting requirements.

The new factory and offices are located at 11467 Kercheval Avenue, Detroit 14, Michigan.

We appreciate your patronage in the past and will look forward to your future requirements.

PROCESS MOLD CO.

11471 Kercheval Avenue
Detroit 14, Michigan

Valley 1-5210

WHITETEX OR #33 PIGMENT

FOR COMPOUNDING *Plastics*

- GOOD Electrical Tests
- HEAT Stability
- RIGIDITY--COLOR

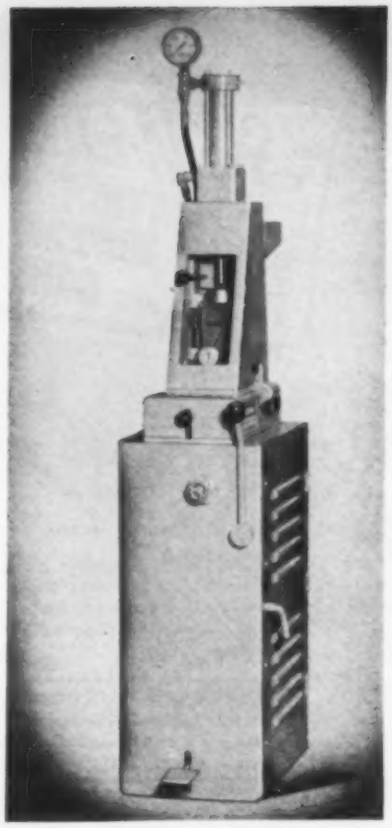
WHITETEX is a very fine particle size and has 90 G.E. Brightness.

No. 33 PIGMENT is coarser than WHITETEX and has 80 G.E. Brightness and is lower in cost, but suitable for plastic compounding. Both pigments disperse readily in plastics, and especially in Vinyls.

*SAMPLES and data on request.

SOUTHERN CLAYS, INC.

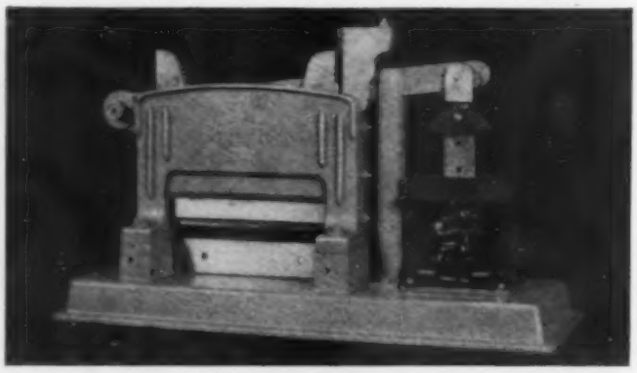
33 RECTOR STREET NEW YORK 6, N. Y.



Injection molding machine—Moslo Machinery Co., 2443 Prospect Ave., Cleveland 15, Ohio, announces a hydraulic powered model of its Minijector injection molding machine. The earlier model was hand - operated. The newly designed ¾-oz. floor model unit features a metering type hand-operated hopper, a built-in relief valve for injection pressure control, and a hydraulic indicating gage with manual shut-off. The 1 hp. 1800 r.p.m. ball bearing motor had a manual starter.

Electronic sewing machine—Mayflower Electronic Devices, Inc., a division of Mayflower Machine & Tool Co., 6014 Hudson Blvd., West New York, N. J., has announced a new high-frequency electronic sewing machine with two rotary wheels. This machine enables two parallel seams to be welded on thermoplastic film simultaneously. It can also weld two different thickness of material at the same time. Manufactured under R.C.A. patents, it is being used for welding the top seam of shower curtains, side seams of raincoats, and for welding foil paper between two sheets of vinyl for decorative and fashion applications.

Cut-off attachment—An automatic cut-off attachment which can easily be attached to an extruding machine conveyor for cutting of extruded rods, tubes, sheets, and shapes to any desired length has been announced by



Barker & Davis Machine Co., Inc., 91 Mechanic St., Leominster, Mass. The model shown here without a cover has an 8-in. blade, an over-all height of 15 in. and a base 8½ by 23 inches. Other models with wider blades for cutting up to 36 in. are also available.

3 materials you should know about...

PLYON PF*

New and improved post-forming laminate

Superiorities

(a) Doesn't crack. New resin binders move with the fabric filler.

(b) Permits maximum draw and the forming of compound curvatures.

(c) Has decorative as well as industrial applications. It's produced in solid colors, both translucent and opaque, and in single and multi-color patterns as well.

(d) Obtainable in four thicknesses. Gauges are .015", .040", .060" and .070". Fillers are Fiberglas, cotton fabric or cotton in combination with other textiles.

*Reg. U. S. Pat. Off.

Decorative PLYON*

Low-cost, low pressure laminate. Plywood or Masonite-backed.

Features

(a) Saves the waste of extra weight. You order just the thickness you need . . . either...025" (Masonite-backed) or .050" (plywood-backed).

(b) Has many profitable uses: for surfacing drainboards, table tops, counters in stores and lunchrooms, wainscoting and the like.

(c) Beautiful colors, attractive patterns, multiple color combinations, solid tones.

(d) Resists acids, alcohols, alkalis and grease. Doesn't nick or dent.

(e) Easy to install. Comes ready to use. Just cut to shape and glue in place.

*Reg. U. S. Pat. Off.

Fabricated ACRYLICS

The Acrylics Fabricating Division of Swedlow Plastics specializes in the production of transparent acrylic components (plain or laminated) which must possess special optical properties and physical characteristics. These components include shields, astrodomes, aircraft canopies and noses and protective housings for machines and laboratory equipment.
Swedlow engineers are ready, without charge, to consult on specific applications for fabricated acrylic components.

MAIL THIS COUPON FOR DETAILS

Swedlow Plastics Co., 3757 Wilshire Blvd., Los Angeles 5, Cal.

Gentlemen: Send me full particulars about

- ☐ Plyon PF, the improved post-forming laminate
- ☐ Decorative Plyon bonded to Masonite and plywood
- ☐ Swedlow-fabricated acrylics

I'm interested in these specific applications.....

.....

Name.....Position.....

Company.....

Place.....

.....

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PLASTICS CO.
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Sole foreign distributors: OMNI PRODUCTS CORP.
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HARFLEX* PLASTICIZERS

DIBENZYL SEBACATE
DICAPRYL SEBACATE
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DIHEXYL PHTHALATE
DIMETHYL SEBACATE
BUTYL STEARATE

HARCHEM offers you a complete line of Plasticizers for Vinyl Resins, Synthetic Rubbers and other Plastics and Elastomers. HARCHEM has developed a variety of Plasticizers, each with its own special combination of properties. This enables the user to select that particular product most suited to his own needs. Consult us if you have a Plasticizer problem. Our technical staff will be glad to assist you.

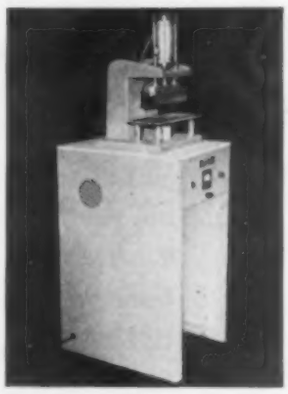
HARCHEM

*Trade Mark

HARDESTY CHEMICAL CO., INC.
41 EAST 42nd ST., NEW YORK 17, N. Y.

from your plastic film fabrication

Production speed is strictly a matter of dollars and cents—and you can increase your returns, produce more finished plastic film articles per hour, by using a Progressive Electronic Heat Sealer.



AUTOMATIC OPERATION FOR GREATER SPEED

Up to 60% faster than other bar sealers, the Progressive is noted for its easy operation. To make novelty items, inflatables, aprons and similar articles, the plastic film or sheeting is merely placed in postion and a button is pressed. While the Progressive closes, seals and opens—all automatically—the operator is free to prepare the next unit for sealing.

Two designs are available—one with a hinged press and one with an overhead, compressed air operated sealing bar, as shown. Generators are obtainable with outputs from .35 KW to 5.0 KW. Special larger units can be supplied up to 10 KW output. Prices range from $400-$6500, depending upon generator capacity and machine design. Each Progressive Electronic Heat Sealer comes complete with all necessary gauges and guards.

FAST DELIVERY AND SERVICE

Deliveries are prompt and installation is by Progressive Electronic engineers. An efficient field organization services your Progressive Sealer whenever necessary, wherever your plant is located—within 24 hours!

Write now. Arrange for a free demonstration of a high speed, profit-producing Progressive Electronic Heat Sealer. No obligation.

Progressive Electronics Co. inc.
Bldg. #3 · 132 Eighth Street · Passaic, New Jersey

1st Award

in Musical Instruments

SEVENTH ANNUAL

MODERN PLASTICS COMPETITION

Patents: 2,373,129—2,407,312—2,416,451. Other U.S. and foreign patents pending. Infringements will be prosecuted.

THIS signal recognition accorded the MAGNUS integrally-molded, all-plastic harmonica reed plate is further indication of the merit which has won world-wide acceptance of our products.

By developing this reed, MAGNUS has made history both in the music world and the plastics engineering field. The multi-million dollar world harmonica market has been revolutionized . . . with America dominant, instead of depending on European manufacturers for its supply. And the plastics industry has been given new standards of precision by the MAGNUS achievement of holding .0001-inch tolerances in mass-production reed molding. This remarkable feat is unparalleled in precision plastics work.

KNOW-HOW *Available*

The engineering know-how and modern production facilities which made this prize-winning achievement possible are available to other manufacturers who demand the ultimate in precision molding. Your custom molding problems will get careful attention —no obligation for consultation, of course.

Your Inquiry Is Invited

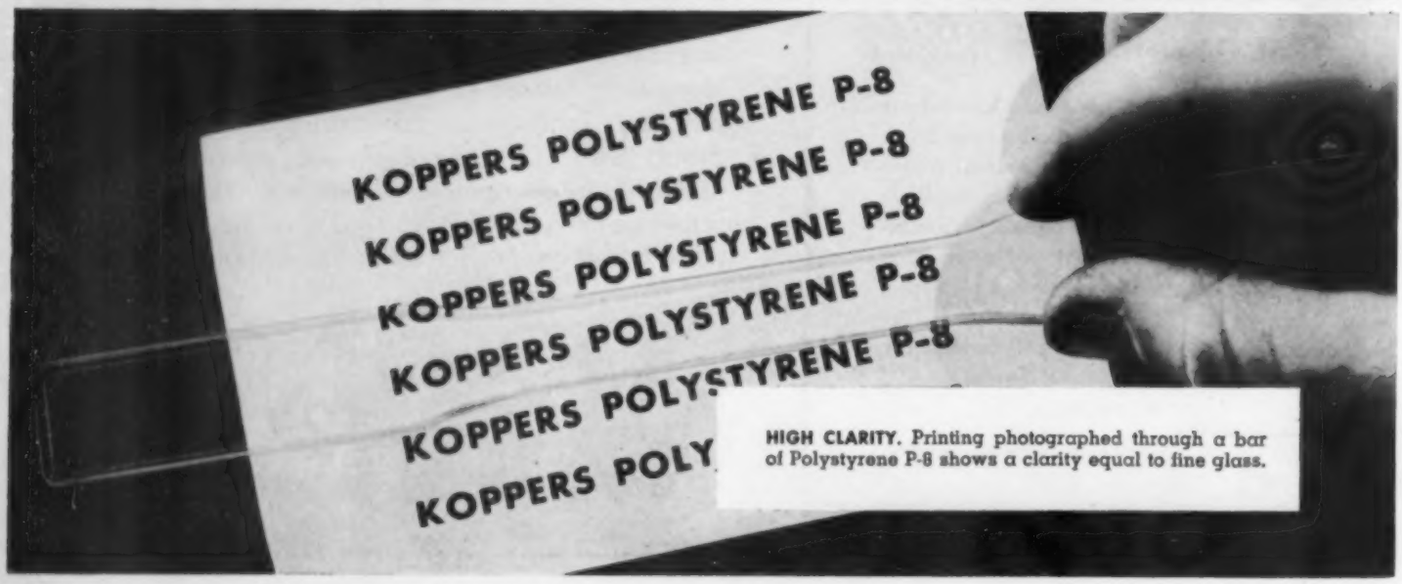
MAGNUS

HARMONICA CORPORATION

439 Frelinghuysen Avenue, Newark, New Jersey

Koppers breaks

TEETH TALK. The accurately formed teeth of this comb indicate the superior molding properties of Koppers Polystyrene P-8 — and the comb can be sterilized without distortion.



HIGH CLARITY. Printing photographed through a bar of Polystyrene P-8 shows a clarity equal to fine glass.

the news again with POLYSTYRENE P-8

EXCELLENT MOLDABILITY
INCREASED HEAT RESISTANCE
SUPERB CLARITY...AT NO EXTRA COST

A long sought improvement in polystrene quality is now a commercial fact with the introduction of Koppers Polystyrene P-8. Dimensional stability to heat exposure is greatly increased . . . heat resistance (by A.S.T.M. D648, Heat Distortion Temperature) raised 10°F above that of the best previously obtainable regular-priced polystyrene . . . *plus* crystal clarity . . . *plus* fast, easy moldability . . . *plus* reliable, unvarying quality from drum to drum—from shipment to shipment.

HEAT RESISTANCE. You need no longer use a premium priced material for those articles — cups, saucers, spoons, tumblers, sink strainers, tea strainers, food trays—which used to distort in the automatic dish washer's scalding water . . . or for portable radio cabinets where the hot spot over the power tube sagged. The availability of Koppers Polystyrene P-8 further reduces the limitations on polystyrene applications due to heat. Koppers P-8 stands up, holds its dimensions under heat exposure. It really has the greater heat resistance you and your customers have been looking for.

COLORS. Koppers first makes crystal P-8, as clear and colorless as glass. So, P-8 has unlimited color possibilities—clean pale transparents, clean pale translucents or pastels, to brilliant or deep translucents, to clean pale or brilliant or dark opaques, snow white, porcelain white, cream, ivory, dull or jet black—all at usual prices. What's more, colors can be accurately duplicated by means of the latest scientific color matching equipment in the hands of skillful color matching artists.

NEW PROCESS. Koppers pioneered a new and distinctly different commercial process for polystyrene. Koppers controls the quality of the raw chemicals. Koppers makes and controls the quality of the styrene monomer used for Koppers Polystyrene, made under the strictest quality control. P-8 is the latest advance, all under Koppers control. No wonder that Koppers Polystyrene is a product of reliable uniformity with the same qualities maintained order after order.

FASTER PRODUCTION. Along with higher heat resistance, Koppers P-8 will give you more pieces per hour, fewer rejects, less scrap, a better product at lower costs.

Mr. Molder: Try Koppers Polystyrene P-8 in your own molds. Clip the coupon.

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Please send me your "Kobuta Special" drum of Koppers P-8 Polystyrene pellets (25 lbs.). I understand there will be no charge.

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BOOKS AND BOOKLETS

Write for these publications to the companies listed. Unless otherwise specified, they will be sent gratis to executives who request them on business stationery

"Distillation and Rectification," by Emil Kirschbaum. Translated by M. Wulfinghoff.

Published by the Chemical Publishing Co., Inc., 26 Court St., Brooklyn 2, N. Y. Price $10.00. 430 pages.

This is the first English translation of this authoritative reference work which covers every phase of distillation and rectification engineering. The contents of the book include the theory of distillation and rectification, the separation of liquids by simple distillation, the rectifying column, continuous distilling equipment having rectifying and stripping sections, rectification processing in the enthalpy-concentration plot, the separation of more than two components, the determination of the dimensions of rectifying columns with exchanger plates, rectification in packed columns, and molecular distillation. The text is supplemented with many helpful diagrams and charts.

"Appareillage et Usinage des Matieres Plastiques," by L. Lescuyer.

Published by Dunod, 92 rue Bonaparte, Paris, France. 1947.

Equipment and machinery used in the processing of plastic materials are described in two columns. They are copiously illustrated with pictures and sketches of French machines.—*G.M.K.*

"Technical Data on Plastics," compiled by the Technical Committee of the Plastic Materials Manufacturers Association, Inc.

Published by the Plastic Materials Manufacturers Association, Inc. Tower Bldg., 14th and K Sts., N.W., Washington, 5, D. C. Price $2.50. 141 pages.

A compilation of technical data on all plastics which are commercially available, this book was compiled by the Technical Committee of PMMA with the assistance of representatives of certain non-member material manufacturers, laminators, and other groups. It should help to focus the attention of engineers, molders, and fabricators of plastics on the measured properties of these materials and on the variables which affect them. Its 141 pages include sections on 23 different plastics materials. Each section follows the same general outline and includes a brief discussion of the chemistry of the material; methods of molding, casting, or fabrication used; a general treatise on the properties; and a listing of certain typical and successful uses. This information is followed in each case by a tabular listing of the more important physical properties of each material. A bibliography and a good index complete this well done job which should be of great value in bringing about a closer relationship between test results and actual field performance of plastics

"Woodflour," by W. S. Dahl.

Published by the author, 30 Stanley road, Mortlake, London, S.W. 14, England. Price 21s, 119 pages.

The many uses and potentialities of woodflour are dealt with in this book, written by one of the early pioneers of this product. The text discloses a large variety of purposes for which woodflour and woodwaste can be manufactured and used. The first of five sections is on the raw material, and includes chapters on the biology of the tree, waste product accumulation, methods of waste removal, and utilization of timber log. The second section covers uses of woodflour and includes chapters on specification of woodflour for plastics, woodflour use in linoleum manufacturing, use of woodflour in plastic wood, and different woods used for woodflour. The third section deals with the manufacture of woodflour. The fourth section, on lignin plastics, also explains how lignin is used for reinforced rubber. The last section describes the exhibits at the Royal Botanical Gardens. Numerous illustrations and diagrams supplement the text and add considerably to the value of the book for both the technical and general reader.

"Adventures with Plastics," by Louis V. Newkirk, Ph.D., Coleman Hewitt, M.A., and LaVada Zutter, M.A.

Published by D. C. Heath and Co., 180 Varick St., New York. N. Y. Price, $3.50, 275 pages.

Planned and written to introduce the subject of plastics by using the materials in the school or home workshop, this volume opens with a discussion on working plastics with common tools and machines. Chapters two through nine are devoted to project designs and construction suggestions, while in the final chapters various types of plastics and the common industrial processes employed in manufacture of plastic items are discussed. Simplest projects are introduced first, and more than 100 carefully designed plastic items are presented. The volume is particularly notable for its clear-cut drawings, its many full-sized patterns for plastic parts, and step-by-step photographs illustrating fabricating techniques.

"Rayon Technology," prepared by the Textile Research Department of American Viscose Corp.

Published by McGraw-Hill Book Co., Inc., 330 W. 42nd St., New York 18, N. Y. Price $3.75, 273 pages.

How rayon can be processed on equipment designed to handle natural fibers is the main theme of this volume. Chapters consider actual working conditions, how best to use equipment, the specific problems likely to arise in using rayon staple, and practical methods of solving them. The text was prepared specifically for mill men who want advanced details on accepted practices in all phases of the industry.

"The Genius of Industrial Research," by D. H. Killeffer.

Published by the Reinhold Publishing Corp., 330 W. 42nd St., New York, N. Y. Price $4.50. 263 pages.

The treatment of modern industrial research and its methods is presented in this book, the material being drawn mainly from the field of industrial chemistry. Quoting directly from those responsible, pithy accounts are presented of how many important modern developments were achieved. Described at length are the research methods which produced high-octane gasoline; the gas-filled tungsten-filament electric lamp; celluloid, the first synthetic plastic; accelerators of rubber vulcanization; synthetic rubber; and many other innovations that have caused revolutions in industry. The point of view throughout the book is that of the individual researcher and not that of management.

(Please turn to next page)

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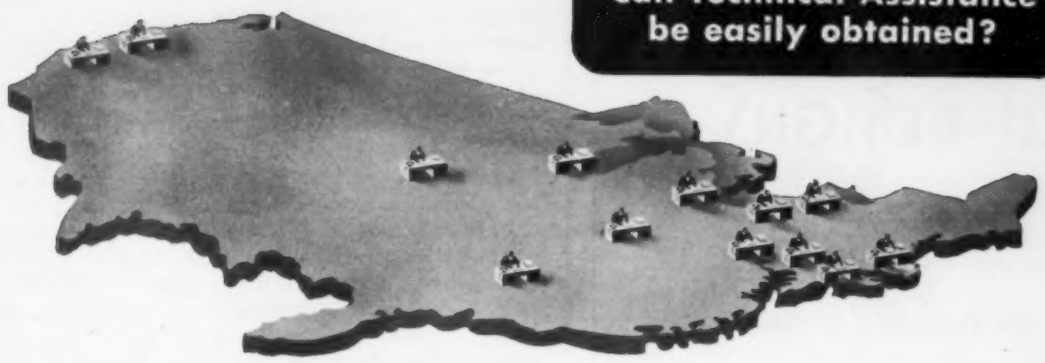

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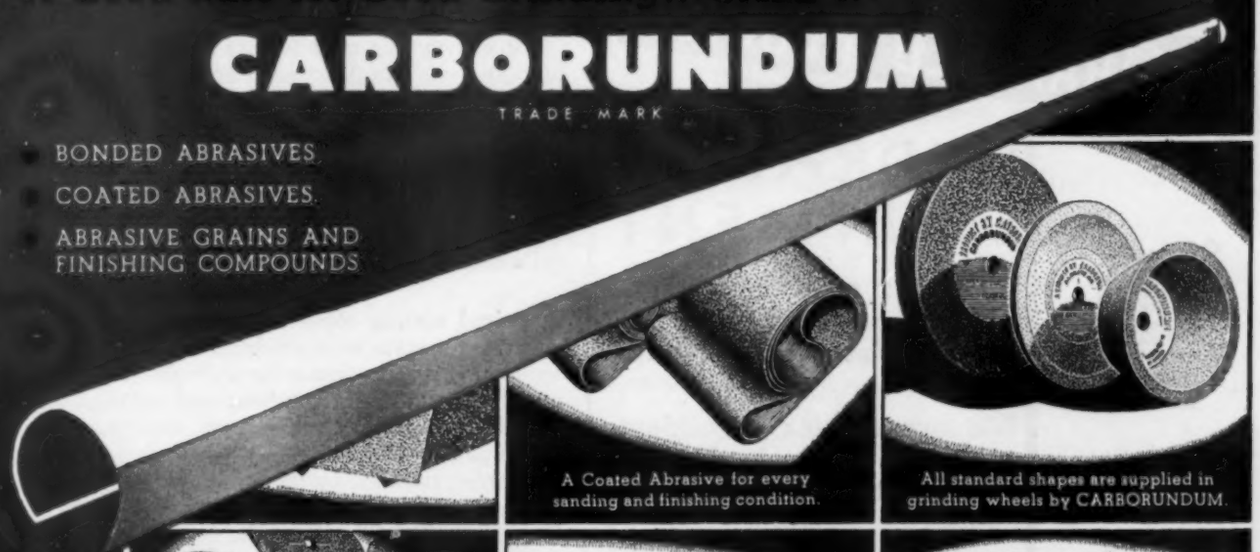

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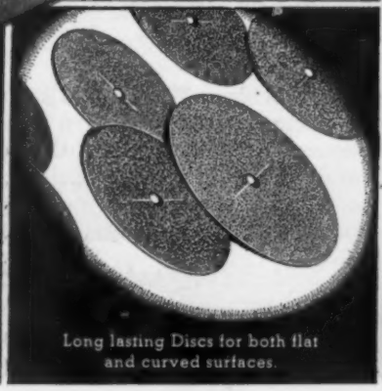

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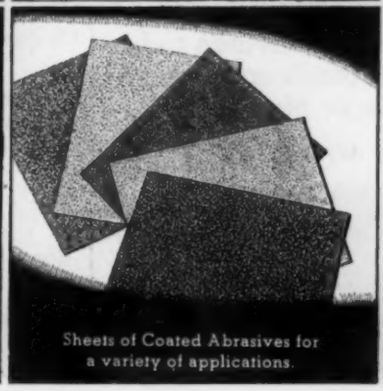

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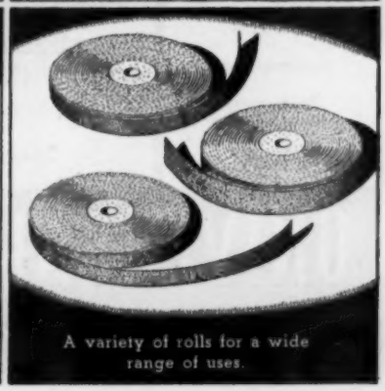

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Industrial machines—The Cincinnati Milling and Grinding Machines, Inc., Cincinnati 9, Ohio has released two new booklets describing their machines. The first booklet, "Automatic Balancing of Grinding Wheels," describes the company's Filmatic grinding machine equipped with a new automatic wheel balancing mechanism. The second booklet, Publication No. M-1646, is a 43-page booklet describing the company's complete line of products. Machines for milling, broaching, cutter sharpening, grinding, lapping, and flame hardening are described and illustrated. A table of specifications is given with each machine.

Silicone mold release agents—"Dow Corning Silicone Mold Release Agents," a 16-page booklet, has just been issued by the Dow Corning Corp., Midland, Mich. Information is presented on the general properties of rubber and plastics and details are given on applications of the agents in the fields of lubricating tire molds and curing bags, and in the lubrication of mechanical rubber goods, floor tile, and plastics. Included in the illustrated booklet is information on DC 7 compound, DC mold release fluid, and DC mold release emulsion 35.

Plastic film—The Firestone Plastics Co., Akron, Ohio, has released a four-page, four-color folder on household applications of Velon, the company's plastic film. The folder describes the product, lists uses for it, and presents its outstanding features.

Industrial ovens—Bulletin 7-L, "The Metal Decorating Oven," an eight-page, two-color publication, issued by the Young Brothers Co., 6500 Mack Ave., Detroit 7, Mich., discusses the uses of the new industrial oven and presents its features.

Synthetic fibers and textiles—The Hercules Powder Co., Inc., Wilmington 99, Del., has announced the publication of two four-page folders describing the company's products used in the manufacture of synthetic fibers and products used in making textiles of cotton, silk, rayon, and wool. The booklet which lists products for textile manufacturing and finishing includes chemicals such as casein, nitrocellulose, and pine oil. Included in the booklet on products for the manufacture of synthetic fibers are chemical cotton, cellulose acetate, nitrocellulose, pine oils, and alpha-terpineol.

Polyvinyl acetate copolymers—Detailed information on polyvinyl acetate copolymers in solution form for use in laminating compositions for cellophane, acetate, paper, metal and cloth lacquers; heat seal coatings, oil resistant paints; transparentizing paper; caulking compounds; and pipe thread sealants is presented in a new technical data sheet released by the American Polymer Corp., 101 Foster St., Peabody, Mass. The new sheet, Technical Data Sheet P-7, is part of the company's New Tools for Industry series.

Vulcanizing machine—The Farrel-Birmingham Co., Inc., Ansonia, Conn., has published a brochure describing its Rotocure machine for continuously vulcanizing rubber and processing plastics. Included in the brochure is a description of the machine's operation, the products it can produce, its advantages, and a diagram of the machine.

Company report—The General Electric Co., Chemical Dept., 1 Plastic Ave., Pittsfield, Mass., has issued an 18-page illustrated booklet, No CDP-576, briefly describing

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Countless manufacturers in the automotive, aircraft, radio, appliance, electrical and many other industries are using the SPEED NUT brand of fasteners . . . to reduce assembly time and cost . . . to improve product quality.

SPEED NUTS can cut *your* assembly costs, too, because they can be applied faster . . . they eliminate assembly operations, such as welding, clinching, riveting . . . and, in many cases, they combine several parts into one.

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7th MODERN PLASTICS COMPETITION

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Our high speed multicolor presses can pr'nt woodgrain, textile, marble and other patterns with faithful reproduction.

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QUICKLY!
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Steel Rollers, 20" wide by 4" diameter.* Mounted in cast iron frame and geared together at a ratio of 1:1. Roller pressure and clearance regulated by two hand screws. Reduction gear system turns rollers at 1/7th of drive wheel speed. Requires only fractional H.P. motor or easily operated by hand.

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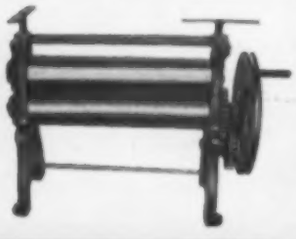

Suitable for processing plastic, crude rubber, fibre, soft metals, leather, etc.

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Yes! Rollers can be heated at slight additional cost. Rollers of rubber or other materials also available.

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its products. Products of the company's Plastics Div., Resin and Insulation Materials Div., Metallurgy Div., and Compound Div. are described and their many industrial applications are outlined.

Glue products—"Glue Room Specialties," a booklet describing various glue room items of interest to woodworkers, furniture manufacturers, and all others who use glue and allied products, has been announced by the Perkins Glue Co., Cannon Ave., Lansdale, Pa. The booklet was revised recently and contains up-to-the-minute information on products designed to improve glue room efficiency.

Tabletting machines—The F. J. Stokes Machine Co., 5934 Tabor Rd., Philadelphia, Pa., has published Catalog No. 48-T which describes its complete line of standard, special, and auxiliary tabletting machinery and equipment. One section of the booklet entitled "The Selection of a Press" gives detailed information for prospective users. The booklet shows the wide range of forms and materials that can be handled with machines built by the company.

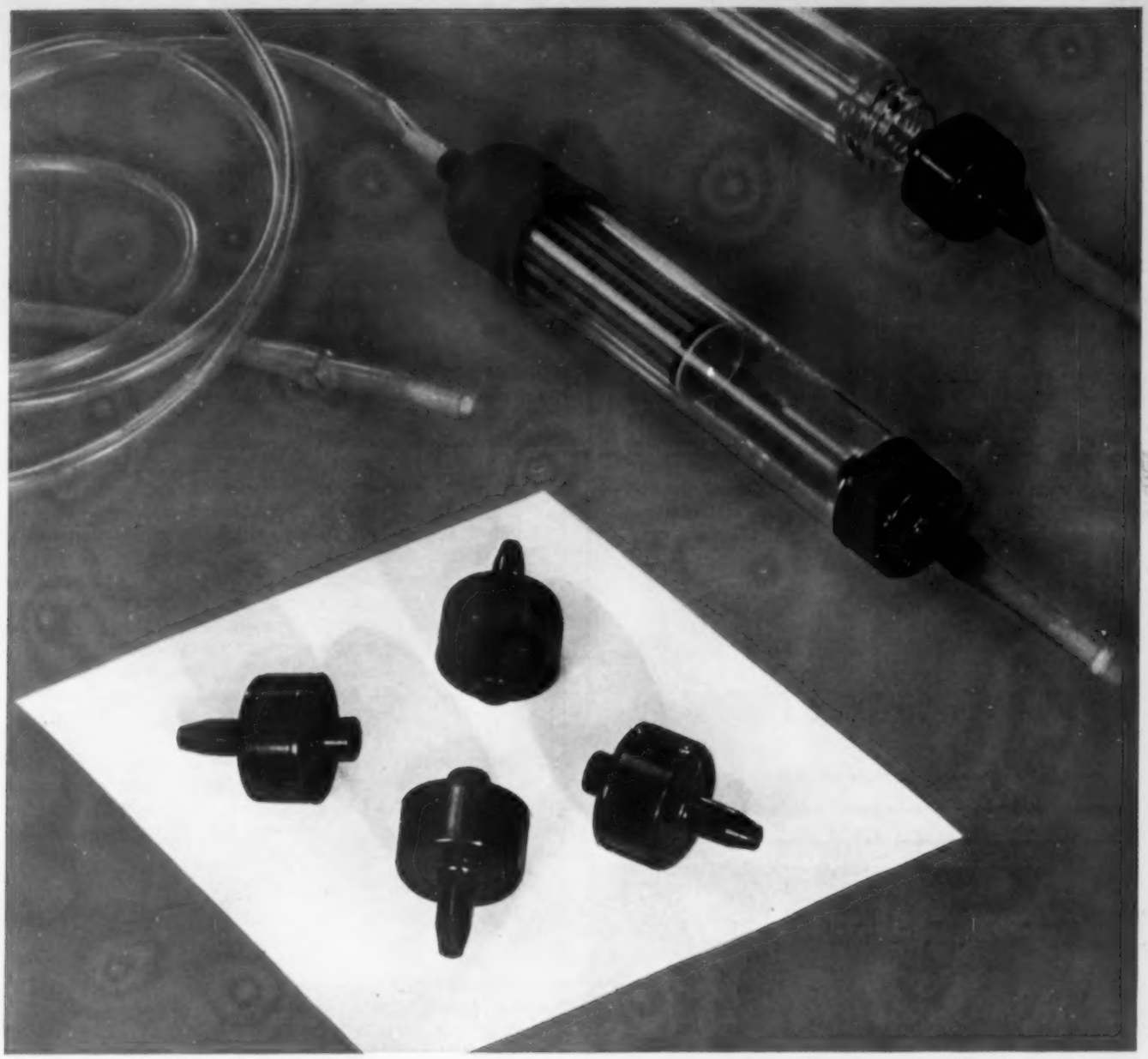
Molded nylon—A four-page brochure has been prepared by the S. S. White Dental Mfg. Co., Plastics Div., 10 E. 40th St., New York 16, N. Y. The brochure, entitled "Nylon Molded to Your Requirements," explains the properties of nylon, and presents a chart on nylon's properties and characteristics. Included in the brochure are three basic nylon formulations and their uses. The company's other molded products in other plastic materials are also presented.

Technical reports in industrial fields—Forty-five special bibliographies of technical reports and documents in various industrial fields which have been prepared for the convenience of businessmen and researchers are now available from the Reference Sec., Office of Technical Services, Dept. of Commerce, Washington 25, D. C. Among the fields covered by these special bibliographies are: cements and concrete, chlorine, confectionary, cutting tools, fats and oils, glass making and optical, plywood, soap and detergents, water supply and sewage disposal, plastics, etc. The bibliographies include listings of both American technological research and reports based upon investigations of enemy technology.

Resins for plaster of Paris—The Chemical Div., The Borden Co., 5000 Summerdale Ave., Philadelphia 24, Pa., has released an eight-page booklet, Bulletin No. 24-B, on Durite resins for plaster of Paris induration. The booklet contains sections on mixing, curing, aminoplast resins, and resorcinol resins. A supplement to this booklet, Supplement A, contains information on buffing jigs.

Marking and code-dating machines—An eight-page booklet, "Machines to Mark Whatever You Make," describing and illustrating 18 different marking and code-dating machines, has been issued by Adolph Gottscho, Inc., 1 Hudson St., New York 13, N. Y. A marking machine selector on the cover, "in-use" photographs of each machine, marginal indexes, and the functional layout of the booklet make it easy for the reader to locate quickly the type of machine suited to his purpose.

Carbide tools—The Metal Carbides Corp., Youngstown, Ohio, has announced the publication of its revised catalog, No. 48-T, covering Talide tungsten carbide tools and



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tips. The catalog incorporates the new standard identification numbers recently adopted by the carbide industry. Also included are descriptions of new styles and sizes of cutting tools and tips.

Handicraft reference catalog—The Universal Handicrafts Service, Inc., 1267 Avenue of the Americas, New York 19, N. Y., has issued Supply Service Catalog No. 6. This 144-page book lists, illustrates, and quotes prices on materials and equipment for use in such creative activities as work with leather, ceramics, basketry, plastics, celluloid etching, wood, metal and jewelry, and weaving. Included in the catalog is a list of books pertaining to the subjects described.

Data on lumber—The Commodity Standards Division of the National Bureau of Standards has released copies of Hardwood Dimension Lumber (second edition), Commercial Standard CS60-48. This standard provides minimum specifications for solid and glued-up hardwood dimension lumber for domestic and export trade, made in five grades of flat stock and four grades of squares. It covers a definition of the product, permissible defects, measurement, and tolerances for rough, surfaced, semi-fabricated, and completely fabricated hardwood dimension lumber. It also covers inspection and a method of certifying compliance with the standard. Copies are for sale by the Superintendent of Documents, Government Printing Office, Washington 25, D. C., for 10 cents. A discount of 25% will be allowed on orders for 100 or more copies sent to a single address.

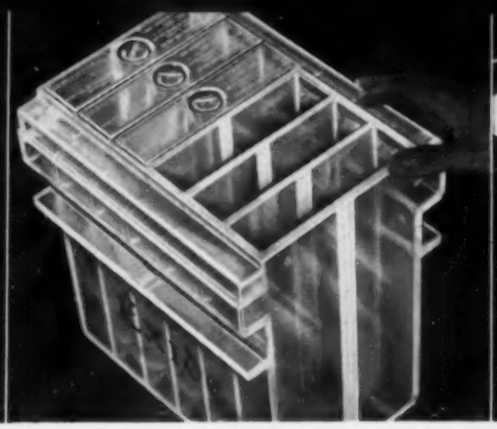
Product evaluation—Foster D. Snell, Inc., 29 W. 15th St., New York 11, N. Y., has just released a six-page booklet, "Physical Measurements and Product Evaluation," describing Snell's services as consulting chemists and engineers in this field.

Packaging—The Syracuse University Press, 920 Irving Ave., Syracuse 10, N. Y., has announced a new 160-page book soon to be published entitled "Packaging Design Considerations." The text is devoted to discussion of various problems relating to packaging, including types of containers, appropriate materials, labels, lettering, and layouts. Case histories and experimental laboratory procedure are also included. The text, illustrations, and captions combine to give a workable introduction to the theory and practice of packaging design. A pre-publication price of $6.00 is offered to subscribers in advance of the first printing. The published price will be somewhat higher.

Data on job management—A 24-page, two-color booklet entitled "Who, Me? . . . Pointers in Job Management" has been issued by the National Foremen's Institute, Inc., Deep River, Conn. This colorful book, written by Arthur O. England and illustrated with striking cartoons, describes how employers may create pleasant relationships with employees. It is available for 25 cents a copy.

Injection press—The Van Dorn Iron Works Co., 2685 E. 79th St., Cleveland 4, Ohio, has published a four-page folder entitled "Model H-200 Plastics Injection Press." The folder explains what the press offers, what it will do for molders, and how it operates. Included in the folder is a large illustration of the press, with outstanding features indicated. There are also three diagrams explaining the Van Dorn platen, the Van Dorn plasticizing chamber, and the special plasticizing chamber for molding nylon.

Packaging Group Winner: Squeeze bag for oleomargarine, designed by Lion Rock Corp. and fabricated by Shellmar Products Corp. for Cudahy Packing Co. Material: Specially developed VINYLITE Plastic Cast Film. Moisture-, grease-, and vapor-resistant, it permits easy kneading of coloring matter into margarine. It increased sales of Delrich Margarine 1200% in one year.



Industrial and Machinery Group Winner: Non-spill aircraft battery container, designed by The Electric Storage Battery Co. and molded by Prolon Plastics Div. of Prophylactic Brush Co. Material: BAKELITE Styrene Plastic. It permits a ratio of power to cubic content and weight greater than any obtained in 28 years of aircraft battery making.

Radio and Musical Instruments Group Co-Winner: Black piano keys, designed by Pratt, Read and Co., and molded by Shaw Insulator Co. Material: BAKELITE Phenolic Plastic. Strong, dimensionally stable, highly moisture and heat resistant, these keys simplify finishing and assembly operations, saving production time and costs.

This speaks for itself...

11 of the 30 award winners

in The Seventh Modern Plastics Competition

use BAKELITE or VINYLITE Plastics

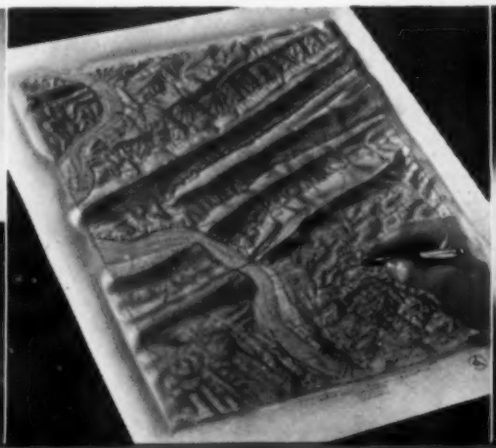
TRADE-MARK TRADE-MARK

Yes, the quality of plastic materials is important. Yet the teamwork of designers, engineers, molders, fabricators and manufacturers in determining how best to use quality plastics, accounts more than anything else for the noteworthy fact that there are BAKELITE and VINYLITE Plastics in 11 of the 30 award winners of The Seventh Modern Plastics Competition.

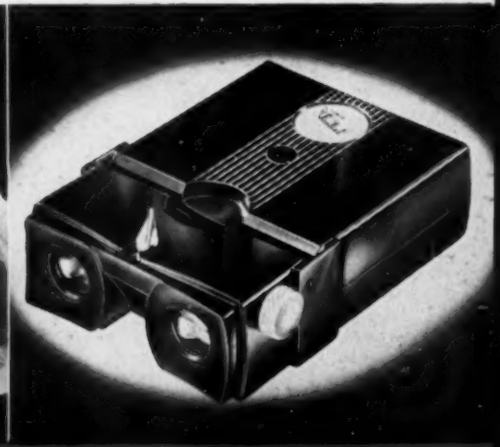
(Continued on next page)

General Housewares Group Winner: Housewares, designed by Earl S. Tupper and molded by Tupper Corp. Material: BAKELITE Polyethylene. Squeezable, they clean without soaking, and are flexible from boiling point to −75 deg. F. They come in pastels and in frosted crystal. They are crack- and chip-proof, with high resistance to most chemicals.

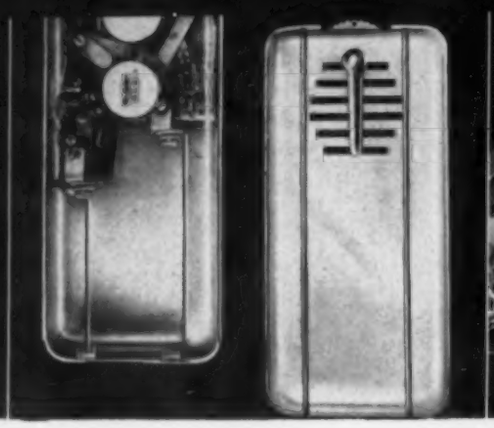
Scientific Group Winner: Topographic Relief Model of geological quadrangle, designed and molded by Aero Service Corp. Material: VINYLITE Plastic Rigid Sheet. A durable, easily cleaned school-teaching aid for geology and geography classes, it is unaffected by humidity, is easily reproduced, and makes possible quantity orders to schools at moderate cost.



Photographic Group Winner: Stereo "Realist" Viewer, designed by Seton Rochwite, molded by Chicago Molded Products Co. for David White Co. Material: BAKELITE Phenolic Plastic. Light in weight, easy to handle, long-lasting and economically produced, it is a three-dimensional, 35-mm. film viewer with its own built-in light source.



Medical and Dental Group Winner: Flexi-Derm Cosmetic Hand for amputees, designed and molded by Dr. A. Alfred Nelson. Material: VINYLITE Resin Plastisols. Extreme realism of skin tone, texture, even fingerprints, is achieved. The hands or limbs fit over suitable cores or frames, and may be used with various motion-control devices.



Communications Group Winner: Hearing aid, designed by Paravox, Inc., with various parts molded by Vichek Tool Co. Materials: BAKELITE Styrene Plastic, BAKELITE Phenolic Plastic, and VINYLITE Plastics. The various compact, lightweight, impact-, electrical- and moisture-resistant components are dimensionally stable, provide notable production and service advantages.

Toys and Games Group Winner: Toy furniture, designed by Eugene J. Lux, and molded by Plastic Art Toy Corp. of America for Columbia Protektosite. Material: BAKELITE Styrene Plastic. Actual scale models of fine furniture, these economical toys are molded with exquisite detail. Their smooth, lustrous finish is waterproof, colorful, and cleans with a damp cloth.

(Continued from preceding page)

Such teamwork, plus the sound counsel of Bakelite Corporation engineers in applying plastics correctly, has paid off handsomely many times. Indeed, the success of BAKELITE and VINYLITE Plastics in thousands of uses has been built on Bakelite's sales policy of engineered application. For our representatives are engineers first, salesmen afterwards. As new applications arise calling either for the development of new plastic materials or the modification of existing ones, our sales engineers in consultation with your production engineers and designers, can often suggest ways that save manufacturing time and money...and make a better product.

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CONNECTICUT:
410 Asylum Street, Hartford 1

ILLINOIS:
230 N. Michigan Ave., Chicago 1

MASSACHUSETTS:
20 Providence Street, Boston 16

MICHIGAN:
807 Stephenson Bldg., Detroit 2

MISSOURI:
3615 Olive Street, St. Louis 8

NEW YORK:
30 E. 42nd Street, New York 17

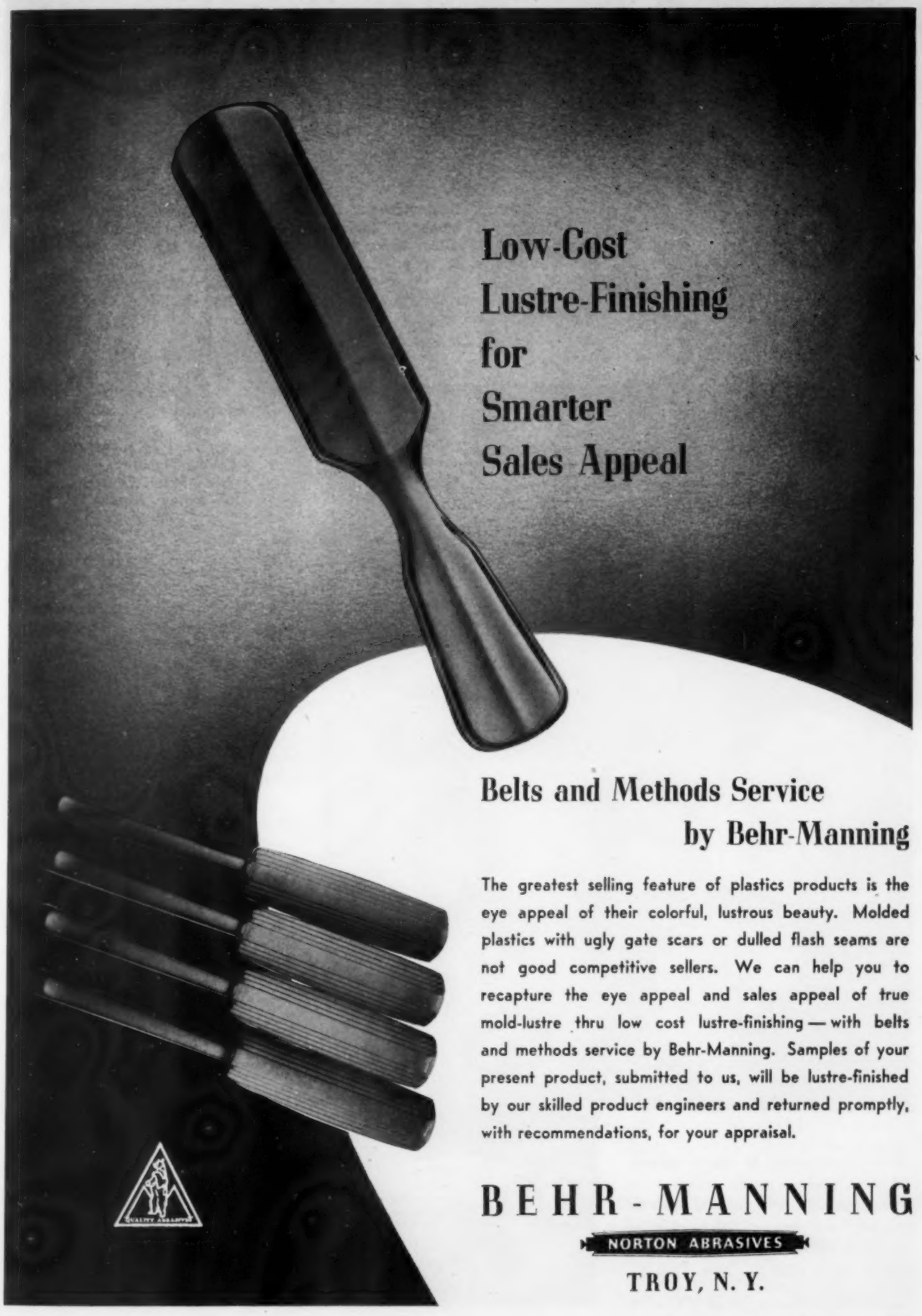
NORTH CAROLINA:
625 Southeastern Bldg.,
Greensboro

OHIO:
1501 Euclid Ave., Cleveland 3

PENNSYLVANIA:
1649 No. Broad St., Philadelphia
311 Ross Street, Pittsburgh

Radio and Musical Instruments Group Co-Winner: Plastic reeds for harmonicas and accordions, designed by Finn H. Magnus, injection molded by Magnus Harmonica Corp. Material: BAKELITE Styrene Plastic. A one-piece reed section, with each reed a part of a plate, it is automatically tuned and ready to assemble at great production cost saving.

Furniture and Interior Decoration Group Winner: "Kalistron" wall covering, designed and fabricated by U. S. Plywood Corp. Material: VINYLITE Plastic Sheeting. This material is highly resistant to abrasion, scuffing, stain, water and oils. It withstands constant flexing and retains its shape. In any desired color, it is used on walls, ceilings, counters, table tops, and as furniture upholstery.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Lustre-Finishing
for
Smarter
Sales Appeal
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The greatest selling feature of plastics products is the eye appeal of their colorful, lustrous beauty. Molded plastics with ugly gate scars or dulled flash seams are not good competitive sellers. We can help you to recapture the eye appeal and sales appeal of true mold-lustre thru low cost lustre-finishing — with belts and methods service by Behr-Manning. Samples of your present product, submitted to us, will be lustre-finished by our skilled product engineers and returned promptly, with recommendations, for your appraisal.
BEHR-MANNING
NORTON ABRASIVES
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PLASTICS STOCK MOLDS*

SEPTEMBER, 1948

A—Self-sharpening knife holders, 11 in. high, 5 in. wide, 3 in. deep. Weight 6 ounces. Polystyrene. Molded in a single cavity mold. Complete with a nickel-plated sharpener which automatically sharpens knives when taken from or replaced in case. Red, green, blue or ivory. Harben Plastics Co., 739 N. Spring St., Los Angeles 12, Calif.

B—Refrigerator dish, width 4 in., length 8 in., height 3⅛ inches. Polystyrene. Clear cover with clear or white body.

C—Crisper pan for the refrigerator, length 14 in., width 9 in., height 5¼ inches. Polystyrene. Clear cover with clear or white body.

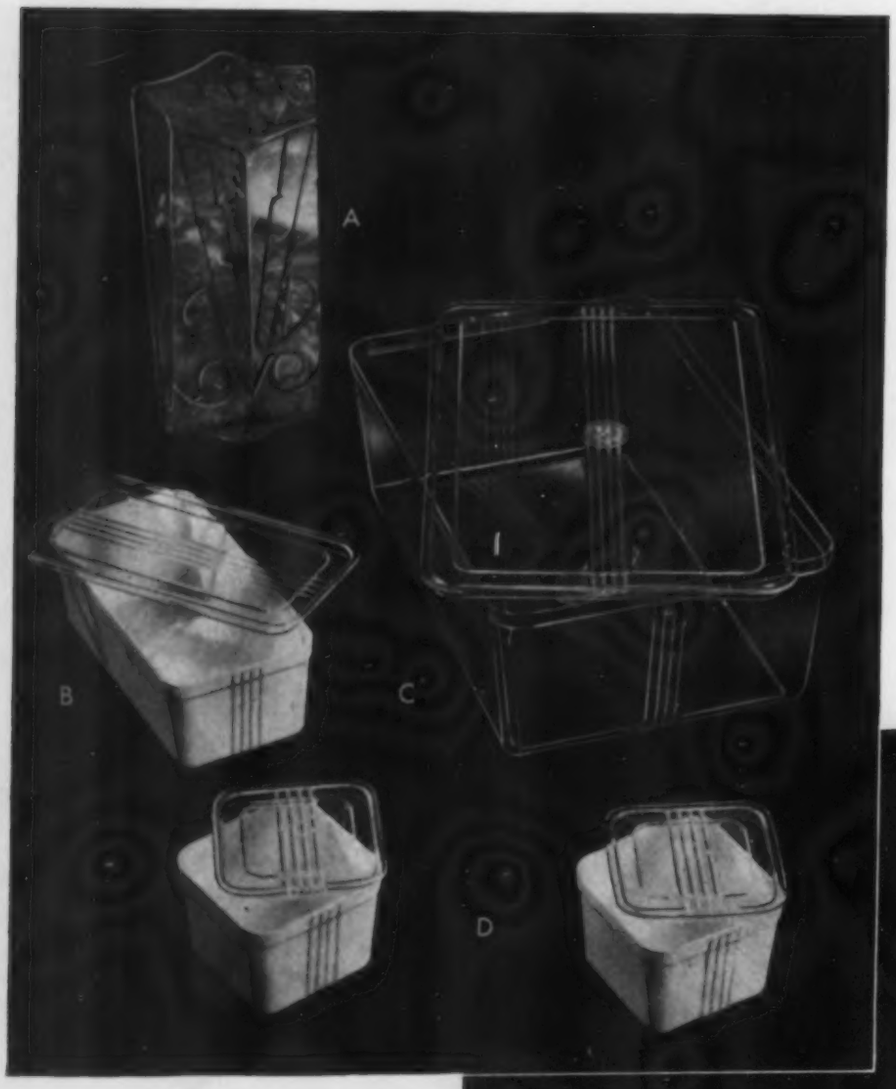
D—Small refrigerator dish, 4 in. square, height 3⅛ inches. Polystyrene. Clear cover with clear or white body.

B to D inclusive. The ridged bottom of these dishes allows them to stand firmly on shelf, insures perfect stacking of one piece on the other, and prevents scratching. Manufactured by Hutzler Manufacturing Co., 4821 Skillman Ave., Long Island City 4, N. Y.

E—Cabinet handle, furnished complete with #8 screws of ⅜, ¾, ⅞, and 1 in. lengths. The span between the mounting centers is 2¾ inches. Acetate, butyrate, ethyl cellulose, or polystyrene. Standard colors. Columbus Molded Plastics Corp., 1703 Keller Ave., Columbus, Ind.

F—Spray plug for dispensing liquids. Designed especially for use with Plax Corporation's 4-oz. Boston Round bottle shown. Plug and bottle, without Irvington Varnish and Insulator Co.'s tubing, may also be used for dispensing powders, chemicals, and more viscous liquids by piercing a larger hole than the present 0.021-in. size. Bottle, plug, and tubing are all polyethylene. Shaw Insulator Co., Irvington 11, N. J.

*Reg. U. S. Patent Office.



Molders are invited to submit samples of stock products to be described on this page as space permits. Address samples and detailed information to Stock Molds Editor, MODERN PLASTICS, 122 E. 42nd St., New York 17, N. Y.

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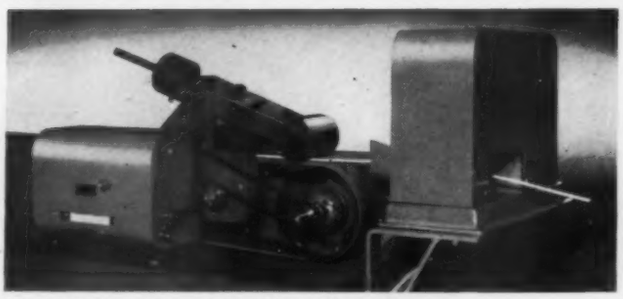

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Twenty-five colorful pastel shades . . . decorative designs in pearlescent, marble, fabric, wood . . . bold or delicate inlays . . . give **FARLITE** variety and gleaming beauty. Prefinished . . . with a tough, translucent resin overlay for added surface protection. Not injured or stained by hot or cold liquids, alcohol, fruit acids. Surfaces wipe clean quickly and easily, retain their sparkling brightness under long, hard wear.

FARLITE is a winning combination of light weight, ultra-modern appearance and exceptional serviceability. Before you select a decorative plastic . . . see **FARLITE**! Top quality throughout.

☆ *Illustrated below are a few of the many decorative* **FARLITE** *applications.*

ON DISPLAY IN BOOTH 280 AT THE EXPOSITION

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1948 GRAND CENTRAL PALACE NEW YORK

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PLASTICS DIVISION, FARLEY & LOETSCHER MFG. CO., DUBUQUE, IOWA

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NOW a thrilling new toy by Timely Turnabout, St. Louis, gains manufacturing and merchandising aid through Santay's skilled engineering and molding techniques. Every detail of its intricate, streamlined design has been faithfully executed in the finished Santay Injection Molded body and dome. Produced in yellow, red and green bodies, with clear plastic domes, and with the name attractively hot-stamped on both sides of the body, this new mechanical toy presents a distinctive, modern appearance. If you are planning something new, in which a simple or intricate injection molded part may be involved, let our plastic craftsmen suggest the best and most economical way to do the job! A letter or post card to our nearest field man will bring prompt and efficient service.

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Consumption of

THE statistics given in the tabulation below represent the shipments and consumption of plastics and synthetic resins as reported by 82 manufacturing companies or company departments in the United States. Quantities which are manufactured by the reporting companies or company divisions and shipped to both domestic and foreign users

Materials
Cellulose acetate and mixed ester plastics[a]
Sheets
Continuous (under 0.003 gage)
Continuous (0.003 gage and upward)
All other sheets, rods, and tubes
Molding and extrusion materials
Total
Nitrocellulose plastics[a]
Sheets
Rods and tubes
Total
Other cellulose plastics[a, b]
Phenolic and other tar acid resins
Laminating (dry basis)
Adhesives (dry basis)
Molding materials[a]
All other, including casting (dry basis)[b]
Total
Urea and melamine resins
Adhesives (dry basis)
Textile and paper treating (dry basis)
All other, including laminating (dry basis)[b, c]
Total
Polystyrene[b, d]
Vinyl resins
Sheeting and film including safety glass sheeting[a]
Textile and paper coating resins (resin content)
Molding and extrusion materials (resin content)
All other including adhesives (resin content)[b]
Total
Miscellaneous resins
Molding materials[a, e]
All other (dry basis)[b, f]
Total
Grand Total

[a]Includes fillers, plasticizers, and extenders. [b]Excludes data for protective coating resins. [c]Excludes urea and melamine molding materials; see footnote [e]. [d]Dry basis, including necessary coloring materials. [e]Includes data for urea and melamine, acrylic acid, and miscellaneous molding materials. [f]Includes

Plastics Materials

are included in the shipment data on which these figures are based. Consumption data are limited to the quantities of plastics and resins which are manufactured and used by the 82 companies or company divisions covered by this report. Statistics are available beginning June 1945. Data for cellulose products only are available for earlier periods.

April 1948	*May 1948*	*Total for first five months—1948*
lb.	*lb.*	*lb.*
676,140	629,748	2,641,801
538,134	581,679	2,942,595
354,000	246,209	1,401,393
3,877,403	3,629,878	19,661,923
5,445,677	5,087,514	26,647,712
773,371	595,504	3,345,976
297,216	270,937	1,385,492
1,070,587	866,441	4,731,468
973,525	1,024,245	4,164,977
3 339,327[h]	2,724,236	16,272,873
1,697,513	1,578,613	8,732,719
15,416,150	11,867,166	82,707,194
5,854,231	4,546,185	25,403,248
26,356,221[h]	20,716,200	133,116,034
4,451,024	4,304,704	22,736,028
1,422.780	1,446,264	7,499,535
687,476	[g]	2,788,896[i]
6,561,280	5,750,968	33,024,459
12,188,506	10,777,174	54,291,755
7,467,905	6,350,610	35,120,384
2,937,881	2,318,445	12,826,410
6,725,444	5,679,994	34,597,211
2,066,646	1,596,574	8,824,851
19,197,876	15,945,623	91,368,856
5,763,187	5,857,580	28,748,814
2,456,013	2,630,753	14,076,328
8,219,200	8,488,333	40,823,142
80,012,872[h]	68,656,498	388,168,403

data for petroleum resins, acrylic acid ester resins, mixtures, and miscellaneous synthetic materials. [g]Cannot be shown without disclosing operations of individual establishments. [h]Revised. [i]The total which is given here covers January through April only.

NEW HINGE for MOLDED PLASTICS
• Self-anchoring
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• Designed for economical molding
CAVU hinge is trim, inconspicuous. It is nickel plated for beauty and protection.
It's the CAVU hinge, specially designed for fast, easy assembly of molded products like tool boxes, card file cases, jewelry boxes and radio cabinets. It anchors tighter, simplifies mold construction, and locks in place without screws or rivets.
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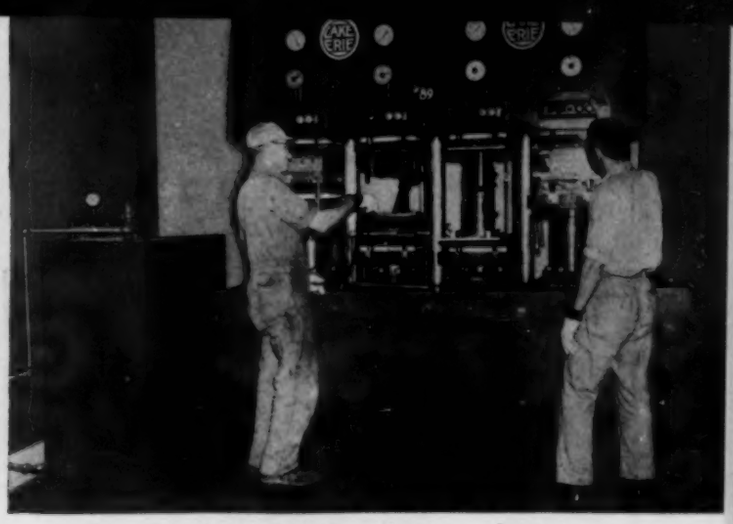
LAKE ERIE PRESSES serve Leading Molders

200-ton Lake Erie compression press producing telephone ha
set handles in the Stromberg-Carlson plant in Rochester, N.

576-ton Lake Erie compression press molding 10½ lb. Admiral Radio cabinets in the Molded Products Company plant in Chicago.

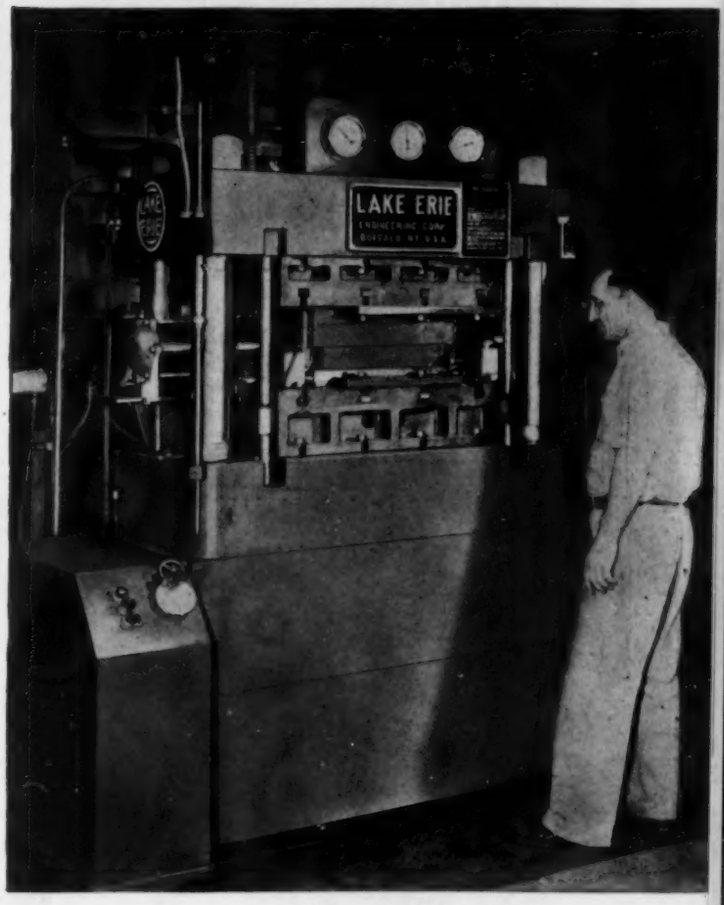
300-ton Lake Erie downstroke duplex press molding ringer bobbi
in the Federal Telephone and Radio Corp. plant in Newark, N.

A pair of 2,500-ton Lake Erie laminating presses installed in the Hawthorne Works of the Western Electric Company.



50-ton Lake Erie multiple-unit, semi-automatic press producing tableware at Plastics Manufacturing Company, Dallas, Texas.

15-ton Lake Erie mobility test press used by leading molders and plastics suppliers is shown in operation in the laboratory of Durez Plastics & Chemicals, Inc., North Tonawanda, New York.



New high speed Lake Erie upstroke duplex press producing Bausch & Lomb safety goggle eye cups at The Auburn Button Works. Savings of 30% or more are usual with this high speed semi-automatic duplex press as compared with opposed ram transfer presses. Press has 200-ton main ram, 50-ton duplex ram inside main ram and 10-ton pullback.

Lake Erie offers a complete line of compression, duplex, laboratory and test presses to the plastics industry. The many models available include automatic, semi-automatic and manually operated types... multi-unit, self-contained and accumulator operated presses. A few of the many types and sizes used by leading molders are shown on these pages. Standard models are available for early delivery. Special models are quickly engineered to order when required. Presses manufactured by Lake Erie are noted for their clean, efficient design, sturdy construction, fast operation and reliable performance. Write for Bulletin illustrating and describing the complete line of Lake Erie molding presses. Or let us know your requirements and our engineers will recommend a press to meet your specific needs. No obligation.

Leading manufacturer of hydraulic presses—all sizes and types—plastics molding... metal working... forging ...metal extrusion ...processing... rubber vulcanizing... stereotyping... special purpose.

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Getting steam or liquids into rotating machine parts used to mean a lot of trouble with stuffing boxes and steam fits. The Johnson Joint has changed all that. It's completely packless, self-oiling, self-adjusting and even self-aligning. Industry is finding new uses for it every day. Type B illustrated provides for condensate removal; other styles and sizes for all needs. Write for details.

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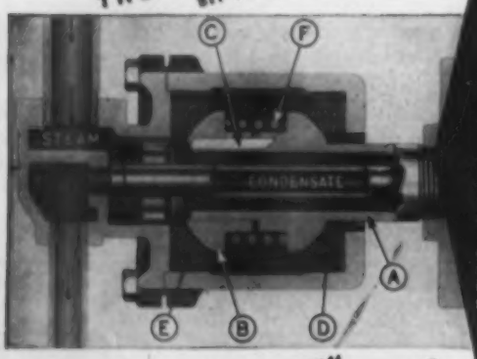
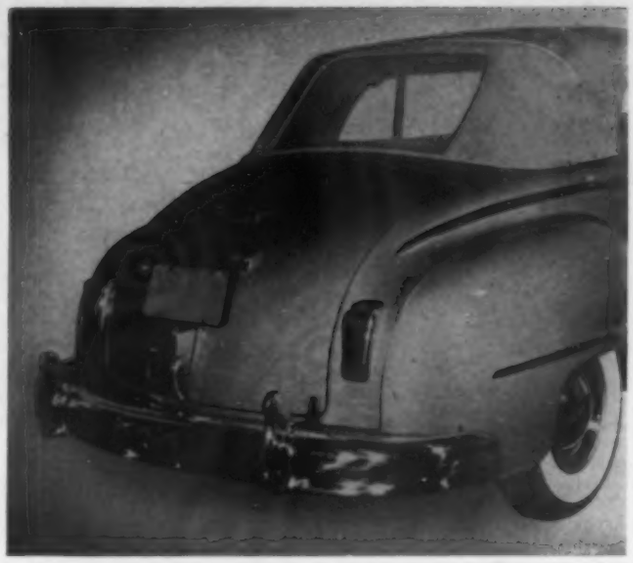


Nipple (A) connected to roll. Collar (B) is keyed (C) to nipple, but fits loosely so pressure can fill housing and force seal ring (D) in place. Both rings (D and E) are of carbon graphite, eliminate oiling and packing. Spring (F) is for initial seating only.

JOHNSON *Rotary Pressure* JOINTS



Convertible equipped with one of the new Full View rear windows of acrylic, which can be installed in a few minutes

Acrylic Car Window

THERE'S plenty of hind sight with a new acrylic rear window for convertible cars which can be slipped into place in a matter of minutes. Manufactured by the Jim Robbins Co., Detroit, Mich., this Full View window is said to offer nearly five times the amount of visibility of the small glass windows which have been standard equipment on this type car.

Up to the present time the size of the glass used in this window by car makers has depended upon the weight which the rear fabric panel could hold. The lightweight Plexiglas window however, replaces the entire rear panel—fabric and glass—and offers a vision area approximately 15 in. longer and 12 in. wider. The plastic window, which is only half the weight of glass, is optically clear and shatter-resistant.

Safety factor

Installation is simple. It does not require complete removal of the back panel or cutting or alteration of the canvas top. The original panel is merely unzipped and dropped behind the car seat. The acrylic window is then inserted with standard fasteners.

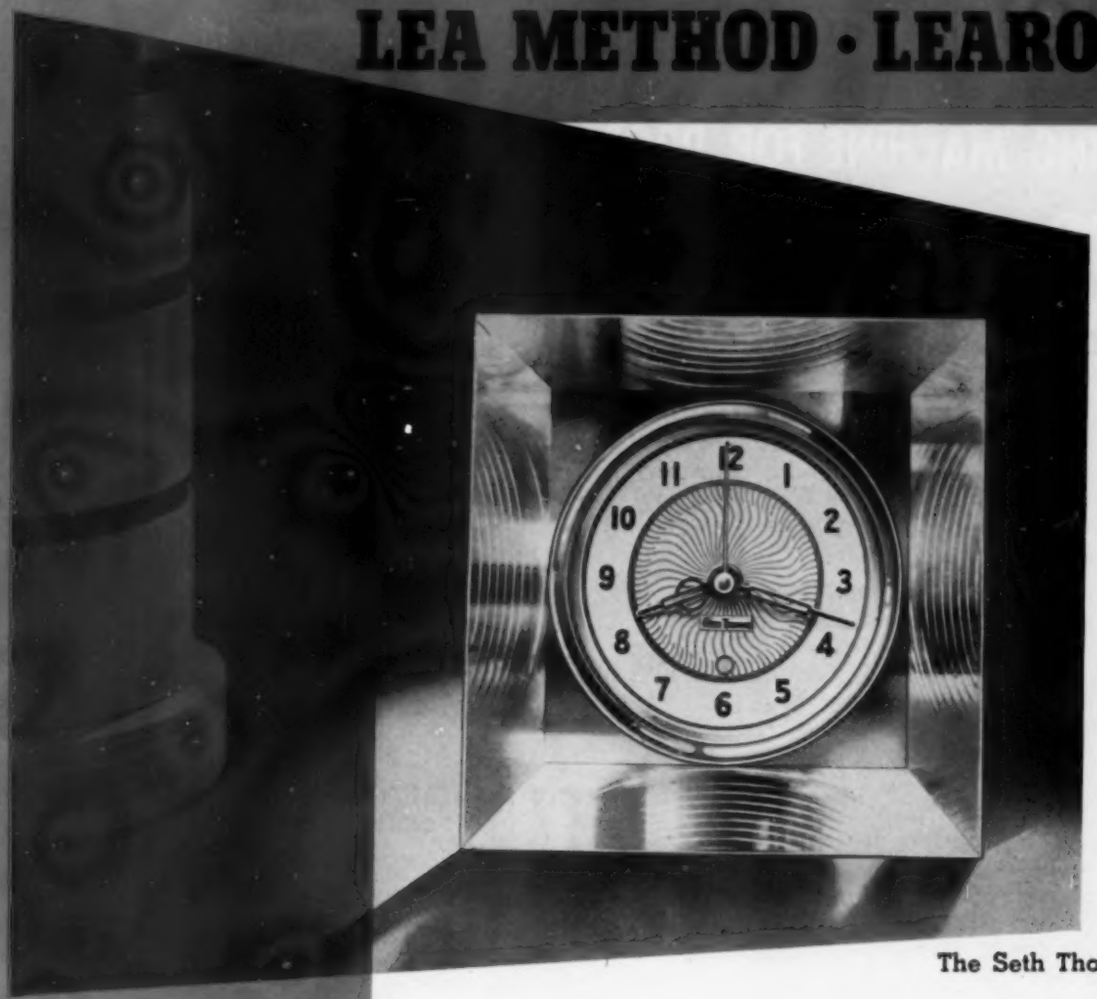
The increased vision thus afforded adds to safety while driving. It is particularly useful when backing into a tight parking space or driving in multi-lane traffic.

The Robbins company is fabricating these Full View windows for use on all post-war convertible models put out by General Motors, Chrysler, and Ford.

CRYSTAL-CLEAR

plastic clock case . . . finished by

LEA METHOD • LEAROK



The Seth Thomas "LUSTRE"

for FAST ECONOMICAL QUALITY FINISHING

SETH THOMAS, "The finest name in clocks," comes to LEA, the leader in finishing, for the methods and compositions necessary in finishing the crystal-clear case on this new "LUSTRE" Electric Time Clock.

This SETH THOMAS finishing job is typical, for LEA METHODS and LEA Compositions are widely used throughout the plastics industry for cutting and color buffing and for the removal of sprues, fins and residual flash.

LEA offers a faster, more economical and higher quality finish. For full details and recommendations write us...our finishing engineers and our laboratories are at your service.

The Plexiglas Frames are finished for Seth Thomas Clocks by J. E. M. Plastics, Waterbury, Conn.

THE LEA MANUFACTURING CO.

Burring, Buffing and Polishing...Manufacturers and Specialists in the Development of Production Methods, Equipment and Compositions

16 CHERRY AVENUE • WATERBURY 86, CONN.

New 1½ OZ. UNIVERSAL ALL-HYDRAULIC MOSLO MINIJECTOR PLASTIC INJECTION MOLDING MACHINE FOR PRODUCTION RUNS

MOLDS ALL THERMOPLASTICS
DELIVERS BIG MACHINE PERFORMANCE

The *NEW* 1½ oz. Universal All-Hydraulic Moslo Minijector Plastic Injection Molding Machine* meets all demands for a well-designed injection molding unit for production runs. Using hydraulic pressure for fast die closing and injection, the *NEW* 1½ oz. Minijector is designed for use in all phases of plastic injection molding.

This *NEW* Minijector features a mold assembly that swings through a 90° arc to permit either horizontal or vertical operation with a simplified mold clamping arrangement. It features hydraulic equipment by Vickers and an accurate metering-type hopper.

*Patents Pending

NEW ¾ OZ. MOSLO MINIJECTOR HYDRAULIC PLASTIC INJECTION MOLDING MACHINE

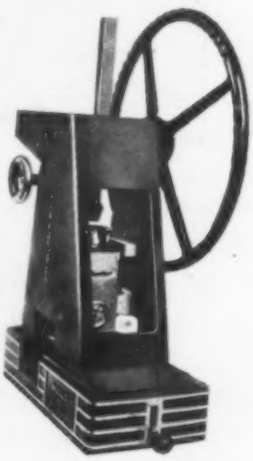
(FLOOR MODEL)

- Metering type hand-operated hopper.
- Vickers hydraulic equipment.
- Relief valve for injection pressure control.
- Hydraulic indicating gauge with manual shut-off.
- 1 H.P., 1800 RPM Ball Bearing Motor, Manual Starter.

PRICE—less motor, starter and electrical wiring. . . . $745.00

SEE THESE NEW MINIJECTORS IN BOOTH 202 THIRD NATIONAL PLASTICS EXPOSITION GRAND CENTRAL PALACE NEW YORK CITY SEPTEMBER 27th to OCT. 1st

MOSLO MINIJECTOR ¾ OZ. HAND OPERATED PLASTIC INJECTION MOLDING MACHINE



MINIJECTOR Plastic Injection Molding Machine, Bench Model (Floor Models also available), complete with standard accessories:

- 550 Watt, 110 Volt, AC Heating Element, Standard Equipment.
- Thermostatic Control.
- ¾" Piston, Alloy Steel, Heat Treated and Chrome Plated.
- Cylinder, Hardened Alloy Steel, Chrome Plated. (Equipped with chrome plated spreader for maximum efficiency)
- Thermometer (Graduated in Fahrenheit Degrees—150° to 750°—Standard. (Operating range of Machine is 150° to 550° F.)
- Hopper—Metering Type (Capacity of approximately four (4) pounds.
- Pilot Light.
- Ten-foot Cord.
- Hand-Operated Die Knock-Out.
- 22" Hand Wheel for easy operation.
- Machine Complete—Ready for operation $245.00

MOSLO MACHINERY CO. CLEVELAND, OHIO

THREE YEARS AGO
A big success . . .

A manufacturer bringing out a new product strives to give it every competitive advantage. The WEAR EVER Baby Carriage Company, Inc., was no exception to that rule when they developed a new high chair three years ago. For that all-important feature—the tray—KYS-ITE was the material selected.

The new model scored a resounding success. KYS-ITE gave sales people an "extra" to talk about and sales figures showed it.

And now . . . it's KYS-ITE again!

Tray molded by Keyes for WEAR EVER

WHERE WILL KYS-ITE BE USED NEXT?

Recently, when WEAR EVER's plans called for a new chair . . . incorporating a tray of more complex design . . . the last word in modern streamlining . . . KYS-ITE got the bid once more.

Instances like this speak volumes for KYS-ITE—and for the skill of Keyes development men in collaborating with manufacturers, designers, engineers . . . whatever their plans may require.

IF YOU HAVE A MOLDING PROBLEM . . .

get the full story on versatile KYS-ITE and its combination of properties no other type of material can match: lightness with great strength; wide range of beautiful colors; unaffected by boiling water or washing compounds; good dielectric properties; unusual adaptability.

WE'LL SEE YOU
AT THE NATIONAL PLASTICS EXPOSITION
Stop in at Booth 41

NATIONAL PLASTICS EXPOSITION
GRAND CENTRAL PALACE NEW YORK
1948
SEPT 27-OCT 2

KEYES FIBRE COMPANY
420 Lexington Avenue
New York 17, New York
Plant at Waterville, Maine

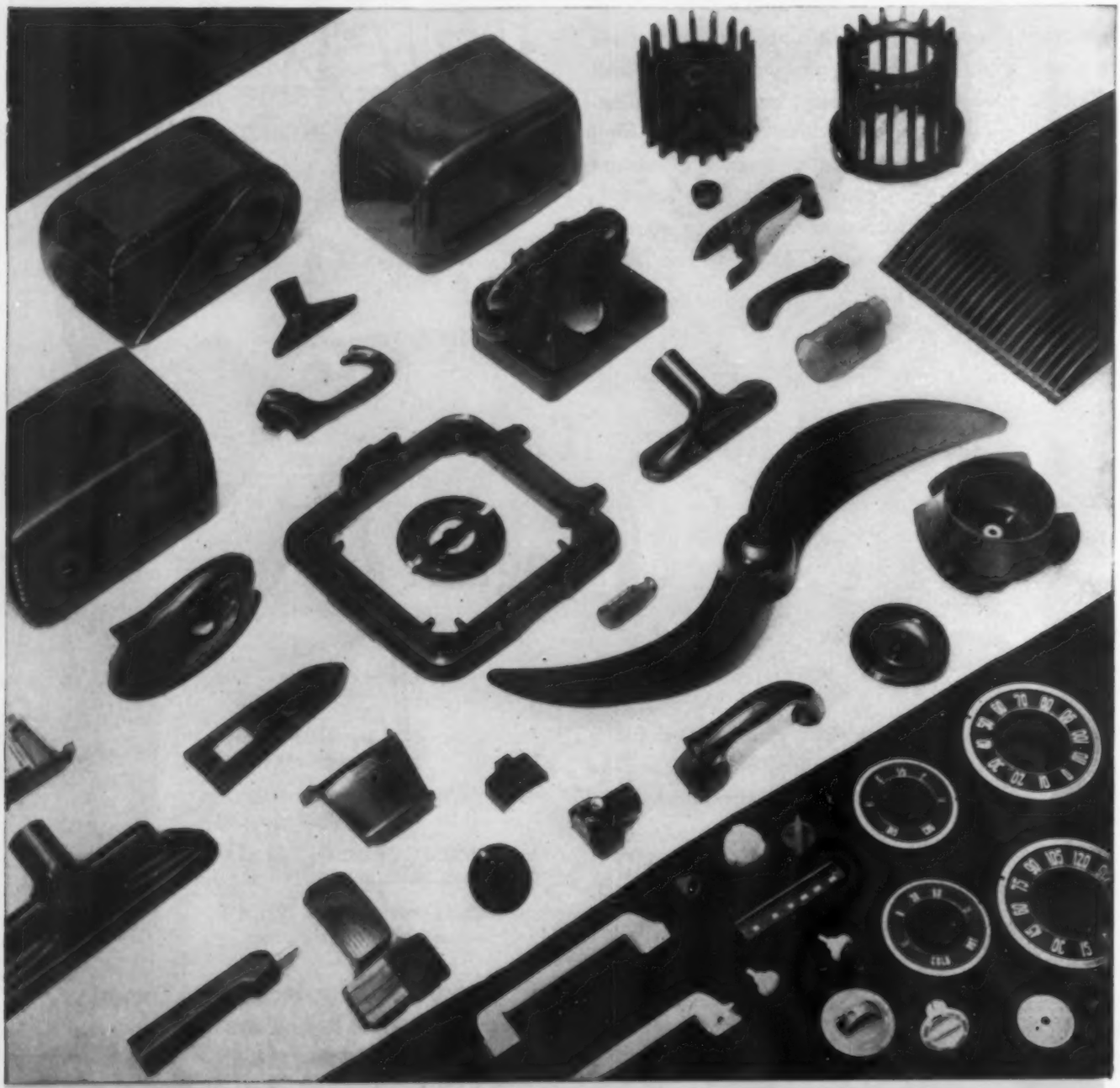
KEYES MOLDED PRODUCTS

KYS-ITE

Reg. U. S. Pat. Off.

Preformed Plastic Combining Long-Fibered Wood Pulp and Synthetic Resin

EXPERIENCE



FOR THE *BEST* IN MOLDED PLASTICS

backed by

• sound engineering

• dependable service

Looking for a producer of top-quality molded plastics? A way to improve you'll find satisfaction in a hurry. to a product design problem? No need to look further! At General Industries you'll find satisfaction in a hurry. Here's why:

EXPERIENCE—gained from more than a quarter century of molded plastics leadership—is at your disposal. At the left are but a few of the countless top-quality products which have been produced efficiently and economically on a mass production basis.

SOUND ENGINEERING — furnished by a highly competent engineering staff — always ready to lend capable design assistance or to tackle a new molding problem.

DEPENDABLE SERVICE — important to you because it means "delivery as promised" and production *exactly* as specified on every job.

These are three of the reasons why many of America's leading manufacturers already are General Industries customers—reasons, too, why it will pay you to discuss your molded plastics requirements with a General Industries representative.

Remember: The only obligation is ours —*to help you.*

THE GENERAL INDUSTRIES CO.
MOLDED PLASTICS PIONEERS
Department PE • Elyria, Ohio

REPRESENTATIVES IN PRINCIPAL CITIES

The MOST POWERFUL PERMANENT MAGNET

Guaranteed To Be Satisfactory

FIND OUT WHAT DINGS *Perma-Plate Magnet* CAN DO FOR YOU!

Select the place where you want to try out Dings Perma-Plate Magnet. Let us know the applicable width and the depth of material burden. If above a conveyor, give belt speed.

We will send you the proper type and size Perma-Plate Magnet, CARRIER CHARGES PREPAID. If it is not fully satisfactory . . . does not give constant, positive magnetic protection to your products and processing equipment . . . SEND IT BACK!

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Here are a few of the features that make us confident our Perma-Plate Magnet will give you complete satisfaction.

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- Easy to Install In Chutes, Over Belts, Etc.
- Used for Wet or Dry Materials
- Magnetic Permanence Guaranteed for Life of Installation

PRICES ARE AS LOW AS $21 FOR THE 4" WIDTH!

Once you have used Dings powerful new Perma-Plate, you'll know why we can make this "satisfaction guaranteed" offer. Write for your Perma-Plate Magnet NOW!

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"HIGH INTENSITY"

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. . . in sizes up to 1,500 tons, are standard equipment in the plastics industry.

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THE FRENCH OIL MILL MACHINERY CO.
(HYDRAULIC PRESS DIVISION)
PIQUA, OHIO U.S.A.

Molded cellulose acetate shoes for marionettes look more real than wooden ones, and their color will not wear off

Shoes for Marionettes

INJECTION molding, a modern method of production, has found a place in the ancient art of marionette making. Marionette characters manufactured by Hazelle's Marionettes, Kansas City, Mo., now wear tiny shoes injection molded of cellulose acetate.

The plastic shoes replace the wooden ones which marionettes usually wear. They look much more real than the wooden shoes because shoelaces, seams, and other markings can be molded in. The natural luster of the plastic also heightens the effect because it makes the shoes look like highly-polished leather.

Unlike the wooden shoes, which have to be painted, the plastic shoes can have leather-like colors molded in. Thus they will not peel or chip as a result of continuous clogging. The light weight of the plastic shoes is an additional advantage.

The plastic shoe has a narrow slot in the top into which is hinged a dowel which is the lower part of the marionette's leg. The slot allows free ankle motion.

Hazelle injection molds the shoes on a Watson-Stillman press. The material is Tenite.

The Plastic Mold & Die Company takes great pleasure in congratulating Kuzan, Incorporated . . . their product Koo-Zoo Building Blocks . . . in winning the 1948 Modern Plastics Competition—Toy Section Award. *Some of these* molds, dies and mold engineering necessary to manufacture this prize winning product were produced for Kuzan, Incorporated by—

★ ★ ★

THE PLASTIC MOLD & DIE COMPANY

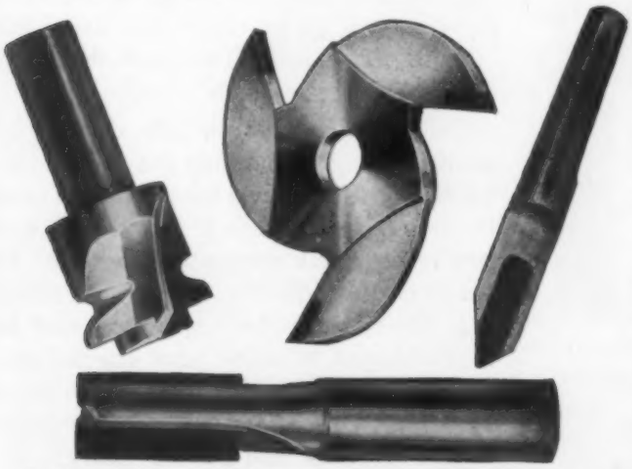
3316 King Avenue Tel. Cherry 7847
CLEVELAND, OHIO

Mr. Thomas Zeelo, President

SLASH TOOL COSTS SPEED PRODUCTION

WITH CARBIDE-TIPPED TOOLS

VELEPEC CARBIDE-TIPPED engraving cutters, end mills, counterbores, countersinks, routing cutters, etc., stay sharp 10 to 30 times longer than regular steel tools. They stay sharper . . . cut cleaner and quicker . . . effect tremendous savings in machine "reset" time.

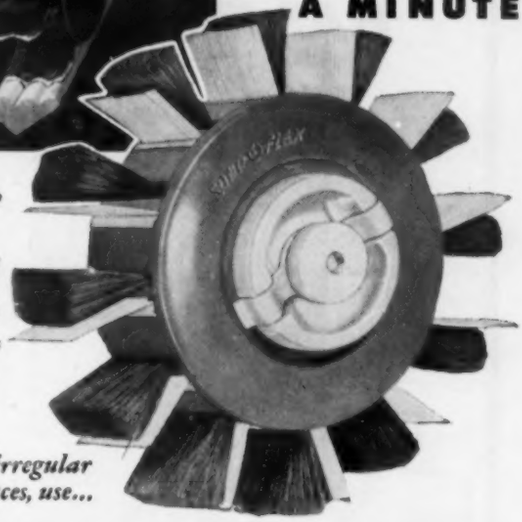


Send for illustrated catalog or quotations on your requirements.

FRED M. VELEPEC CO.
71-11 64th STREET GLENDALE, L. I., N. Y.

Compare this speed with hand methods...

13,000 SANDING STROKES A MINUTE



Note how the brushes force the abrasive cloth down into grooves and around the work shape. Nothing gets in and around intricate curves and contoured shapes as quickly and effectively as Sand-O-Flex.

On curved, irregular plastic surfaces, use...

SAND-O-FLEX

The new, large industrial model 650C: 10-3/4" dia. from brush tip to tip, fits 3/4" shaft, available in right or left hand model. Uses 2-7/16" wide abrasive.

Sand O-Flex consists of twelve replaceable brushes mounted on the outer rim of a wheel. Twelve strips of abrasive cloth 2-7/16" wide unroll from the central magazine and are backed by the brushes which cushion the abrasive and mold it to irregular shapes. When rotated at recommended speed, you get approximately 13,000 strokes per minute which no hand sanding can possibly equal.

Sand-O-Flex has a wide range of applications. It sands, deburrs, removes flash from moulded products and beautifully finishes plastic, rubber and wood products. Sand-O-Flex is available in three models for stationary or portable use. A minimum of heat is generated due to intermittent brush design. It may be used on motor shafts, mandrels, portable hand drills, lathes and many of your present tools, for short or long production runs.

SAND-O-FLEX PREPARED REFILLS

The coil of abrasive is easily fed out by hand as needed, an exclusive patented feature. When cartridge is completely gone, a new one is reloaded in a few minutes. Refills are available in many grits, from very coarse to extra fine. Scored abrasive refills are supplied for operations requiring greater flexibility. By changing grit the same Sand-O-Flex wheel may be used for every finishing requirement.

A FEW SATISFIED USERS OF SAND-O-FLEX

American Airlines, Douglas Aircraft, Firestone Tire & Rubber, Franklin Rubber Co., Frigidaire, General Motors, Marchant Calculating Machine Co., Model Plastic Co., North American Aviation, Pan-American Airways, Southern Pacific, Weber Showcase & Fixture, Western Electric Co., etc.

For complete information, specifications and prices on all models, write for this free catalog.

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To meet the many requests for information concerning Royle "Popular Size" Extruding Machines, a fully illustrated, quick reference bulletin has been prepared describing the Royle # 2, # 3, and # 4 extruding machines — the extruders most commonly associated with current extrusion processes.

Please use the handy coupon below to order your copy of this useful bulletin. It will be sent to you promptly and without obligation.

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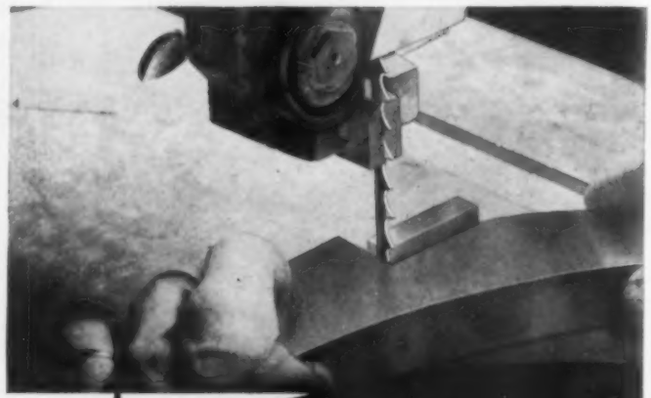

CURL ONE-SKIP ONE FOR COOLER, FASTER PLASTIC SAWING

Faster feed without burning — smoother, cleaner cuts...add them up and they equal increased cutting output, lower cutting costs. These benefits are yours when you use Atkins "Curled-Chip" Band Saws with the Atkins-originated "Skip-Tooth" design.

"Curled-Chip" teeth bite deeply and easily *raising* and *lifting* the chip with a minimum of heat and friction. With fewer teeth per inch, there is extra gullet capacity for quick removal of material. The result is finer, glossier cuts, less refinishing, lower scrap losses, bands that last much longer. Whether your special interest is profile, contour, curved or cut-off sawing, Atkins offers you definite advantages. Write for full details today.

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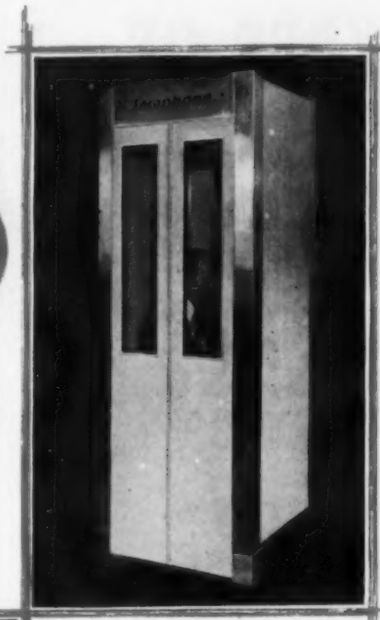
General Electric's Complete Plastics Service Produces

FOUR WINNERS

in the Seventh Modern Plastics Competition

THIS PLASTICS SAILBOAT and plastics dinghy received award in Sporting Goods Classification. Each was low-pressure-molded by General Electric for the Beetle Boat Co., New Bedford, Mass. Whether *your* plastics product is large or small, G. E. has the facilities to produce it efficiently—to design, engineer, and mold it to your specifications.

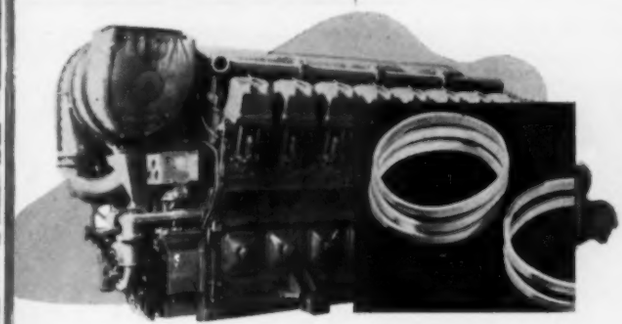


AWARD WINNER in Building Equipment Classification, this telephone booth is paneled in Textolite, General Electric's plastics sheet surfacing material. The booth is made by Sherron Metallic Corporation, Brooklyn, N. Y.

Scratch and wear-resistant, beautiful G-E Textolite is ideal wherever an attractive, extra-durable surface is required.

THESE PLASTICS parts for the Pratt, Read & Company's piano action won the award in Musical Instrument Classification.

They are just one more example of General Electric's versatility as a plastics molder. Whatever *your* plastics problem, or plastics product, it will pay you to consult General Electric.



NEW G-E SILICONE RUBBER gaskets for an American Locomotive diesel engine won the award in Transportation Classification. Molded by General Electric, these gasket are exceptionally resistant to heat.

If heat—or cold—is a problem in your production, investigate G-E silicones.

FOR ANY PLASTICS JOB, you can put your confidence in General Electric, world's largest manufacturer of finished plastics products. Write for information or contact your nearest G-E Sales Office. Plastics Division, Chemical Department, General Electric Company, 1 Plastics Avenue, Pittsfield, Mass.

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CD48-AK1

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CAST COMPONENTS with greater compressive strength, are helping plastics molders:
1 —start production with minimum tooling.
2 —get smoother finish, sharper detail, less rejects.
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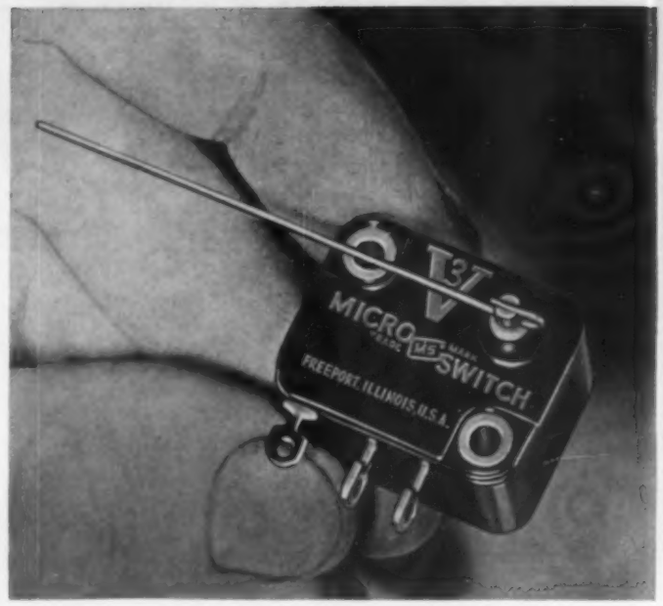


Switch for coin-operated devices is contained in phenolic housing 1 1/16 by 13/16 by 9/16 inches. Coin actuates whisker-type lever

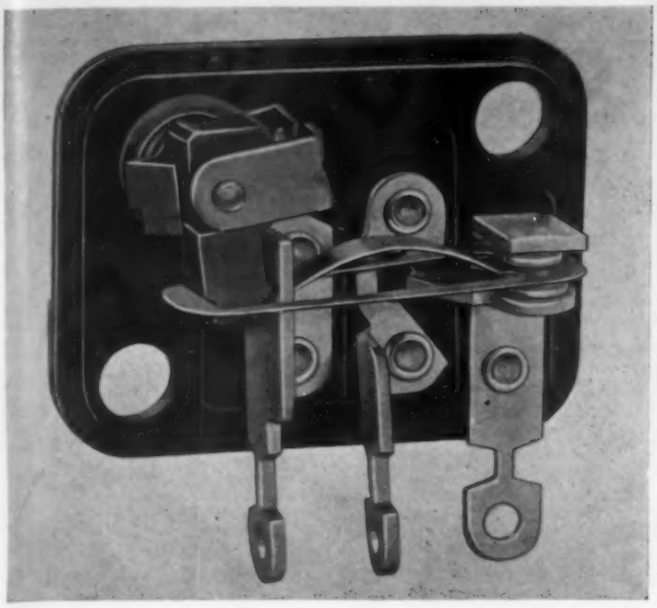
Coin Switch

THE small, whisker-type snap-action switch shown on these pages was developed specifically for use in coin operated devices. The manufacturer, Micro Switch Div. of First Industrial Corp., Freeport, Ill., fulfilled the unusually exacting specifications for switches of this type with a design which includes a molded Durez phenolic base and cover.

Phenolic was selected as a material for the base and cover because of its good dielectric properties, easy moldability, and dimensional stability. Close tolerances had to be held in the phenolic base, which has several holes and raised sections, and in the cover, which protects the mechanism against dust or accidental impact and therefore must fit tightly.

In order to be universally adaptable, the switch had to be capable of operation by coins as small as a worn United States dime, which weighs less than two grams. With a minimum actuating lever 1½ in. long, 3 gram-inches of input energy had to be sufficient to actuate the switch. Lever restoring torque, contact force, contact closure time, and other characteristics also had to be held to tolerances between 0 and 3 gram-inches—as against measurements in ounces for normal snap-action switches.

The other specifications for the switch included adequate current carrying capacity, avoidance of contact chatter, and an assembly which could easily be adapted to either a single or a double-throw switch. The switch was first designed as a single-throw, normally open unit. Its heart is a heat-treated beryllium copper snap action spring. The contacts are pure silver, and silver-plated brass is used for

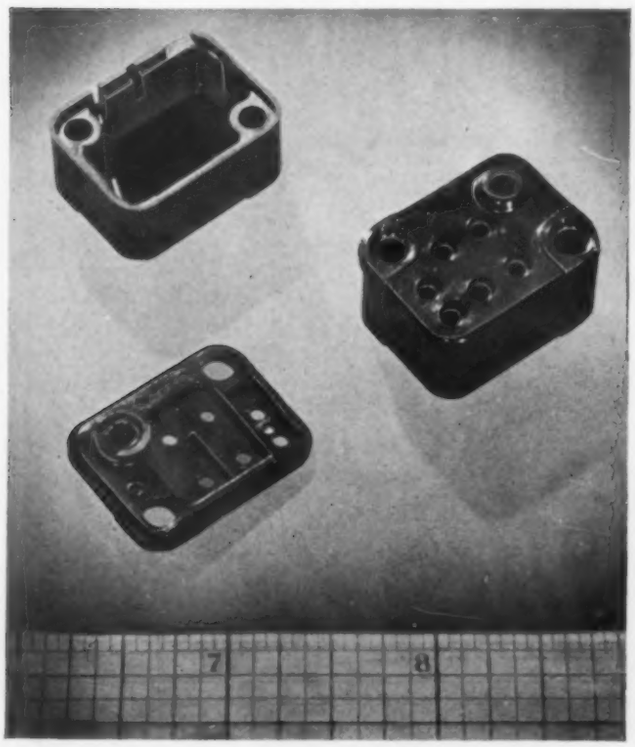


Close-up view of phenolic base and inside mechanism of switch. Three gram-inches of input energy is sufficient to actuate it

the anchor member and the soldering terminals.

The problems involved in designing a double-throw unit into the same general housing were complicated by the fact that over-all dimensions of the housing are 1 1/16 by 13/16 by 9/16 inches. The phenolic base was so designed that the interchange of two core pins permits molding of either double-throw or single-throw switch bases in the same mold.

Switch housing consists of phenolic base (below, left) and cover. Double throw switch fits into same size housing



PLASTIC BEADS

FOR EVERY PURPOSE!

TELL Plastic Beads are preferred by leading pearl, jewelry, novelty, toy and numerous other manufacturers from coast to coast. Expertly made from cellulose acetate material, TELL Plastic Beads are produced in a variety of spheres and shapes.

TELL Plastic Beads are available in the following colors and finishes:

- Alabaster base for pearlizing.
- Chalk white, pink, or blue with waxed finish.
- Gold, silver or rhodium plated.
- Manufactured according to specifications.

Sizes: 2½ - 3 - 3½ - 4 - 4½ - 5 - 5½ - 6 - 7 - 8 - 9 - 10 - 12 - 14 - 15 - 18 mms. may be ordered with or without holes. Submit your specifications or write for samples and prices.

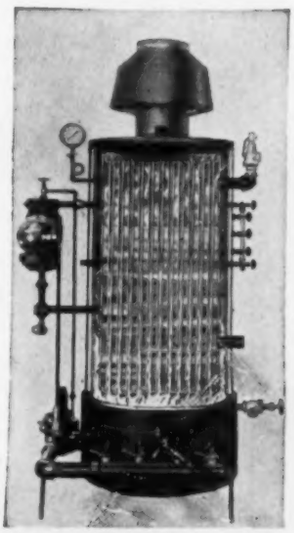
TELL MANUFACTURING CO., INC.
31 Fulton Street • Newark 2, N. J.

THE *Economical* SOLUTION TO YOUR STEAM PROBLEMS . . .

THE KANE BOILER PACKAGE

. . . a compact, self-contained steam source that includes: the correctly sized KANE Automatic Gas-Fired Boiler complete with gas burner and controls to maintain required steam pressure, and an M-K-O Automatic Boiler Feed system designed to return condensate and supply make-up water as required for highest operating efficiency.

Engineered Steam at its best, with four decades of experience at your disposal — so, send your steam problem to us for study and recommendation.



The KANE Boiler is built to A.S.M.E. specifications, in sizes to 30 H. P.

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1903-1915 EAST HAGERT STREET, PHILADELPHIA 25, PA.
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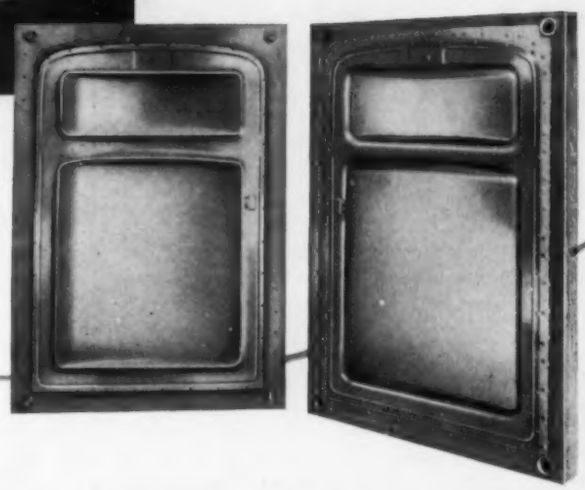
"More than Paper"

To the plastics industry, MOSINEE stands for paper-base processing materials with scientifically controlled chemical and physical properties, quality and uniformity . . . high tensile and tear strength with high absorptive capacity.

Other technical characteristics are controlled to meet specific plastics production requirements.

MOSINEE PAPER MILLS COMPANY • MOSINEE, WIS.

"Essential Paper Manufacturers"



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ALLIED is serving the plastics industry with men thoroughly skilled in the production of steam-heated plastic molds. Every specification for accuracy of form and for fine surface finish is met exactly. It is an Allied service that has developed with the industry—that is in step with the requirements of the industry today.

ALLIED PRODUCTS CORPORATION

DEPARTMENT 2-P

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ALLIED CORPORATION PRODUCTS — PRECISION · EXPERIENCE · DEPENDABILITY

this is *not* a quiz picture

What you see in this picture are beads ground from plastic. We have made similar shapes from wood and fibre. We can make beads and balls from 5/64" diameter and up, in almost any color — cylindrical shapes from 3/16" diameter, and up to 7" long. We invite your inquiry.

ORANGE MACHINE PRODUCTS INC.

82 Main Street West Orange, New Jersey
Orange 5-4645

Advertising Scales

GIANT acrylic reproductions of bottles for well-known beverages are now being used as housings for floor-type penny-operated scales. The units have the advantage of being self-liquidating within a short period after being placed on location. Money deposited in the scales is divided between the sponsoring firm and the location owner.

The units, manufactured by the Advertising Scale Co., Toledo, Ohio, are faithful reproductions of the bottle represented. Housings may also be made to resemble cans, paper packages, or other objects. The finished scale, including platform, is 47 in. high.

Cadillac Plastic Co., Detroit, Mich., shapes the scale housings of ¼-in. sheet Lucite, using a mahogany mold and draw ring with butyl edge. Objects are made in two halves, which bolt to the metal base and are held together at the top by a hinged Lucite cap containing a coin slot. Each bottle reproduction contains about 16 sq. ft. of acrylic, weighing about 24 pounds.

Decals, supplied by Ward Displays, Berkley, Mich., are mounted on the inner surface of the housing, which is sprayed to obtain the desired color.

Scales fabricated of acrylic resemble packages and serve as displays. Three-piece bottle uses 24 lb. of acrylic

New Design

LABORATORY MILLS

Thropp presents four newly designed laboratory mills. Some of these feature self-aligning roller bearings on the rolls, and non-leaking oil seals to prevent contamination of stock. Their use permits high temperatures for plastics. The new mills are available in a wide price and capacity range.

also . . . Thropp Laboratory Calenders

West Coast Representative
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THROPP

WM. R. THROPP & SONS CO. Trenton, N. J.

for you

THERE'S GOLD IN THEM THAR FRILLS!

You can start a consumer gold rush for your plastic costume jewelry — brooches, clips, sprays, charms, bracelets and the like—by calling on Inter-State to coat them in gleaming simulated gold and silver finishes. This relatively inexpensive special process, performed by skilled artist-craftsmen, transforms plastic jewelry into exquisite pieces of rare and striking beauty and multiplies their sales value many times.

See how the Inter-State process can increase the beauty and value of your product. Just send us a sample — we'll plate it without charge, then mail it back to you.

VISIT US AT THE PLASTICS SHOW
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September 27 — October 1st
Grand Central Palace
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Inter-State Products Co.
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WAtkins 9-3030-1,2,3,4

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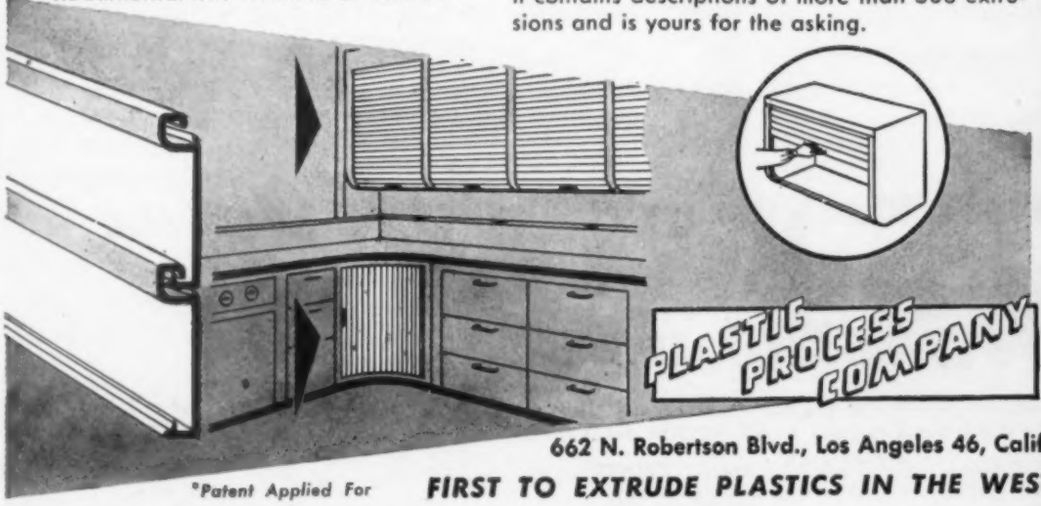
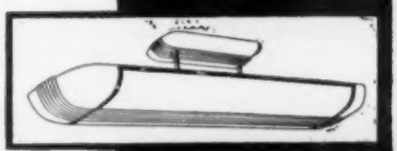
new **PLASTIMODE** *roll-a-way*
INTERLOCKING DOORS*

Simple to install . . . lasts a lifetime. Made from the best material, giving permanency of color, dimensional stability, and wear resistance. Smart and colorful. Up at a touch and out of the way.
EASY TO INSTALL • SANITARY • NO PROTRUDING DOORS • SPACE SAVING MAXIMUM ENTRY • VARIETY OF COLORS

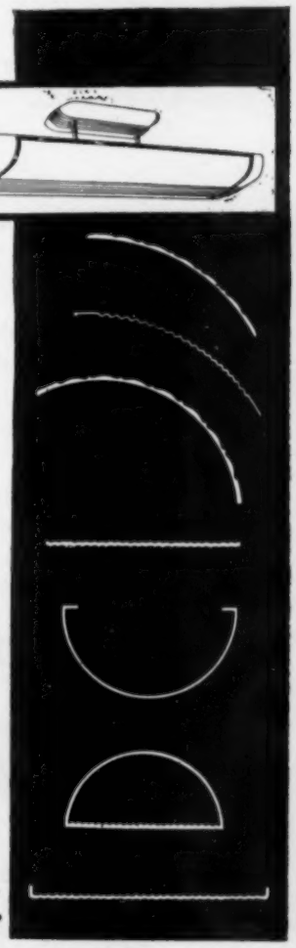


Special Shields and Trim
for
FLUORESCENT FIXTURES



The seven profiles shown at right are typical of the specially shaped extrusions we are now producing for manufacturers of fluorescent fixtures. For help in designing extrusions for similar applications, call on our Engineering Staff . . . it's maintained specifically for that purpose.

And be sure to write for our complete catalog. It contains descriptions of more than 300 extrusions and is yours for the asking.



PLASTIC PROCESS COMPANY
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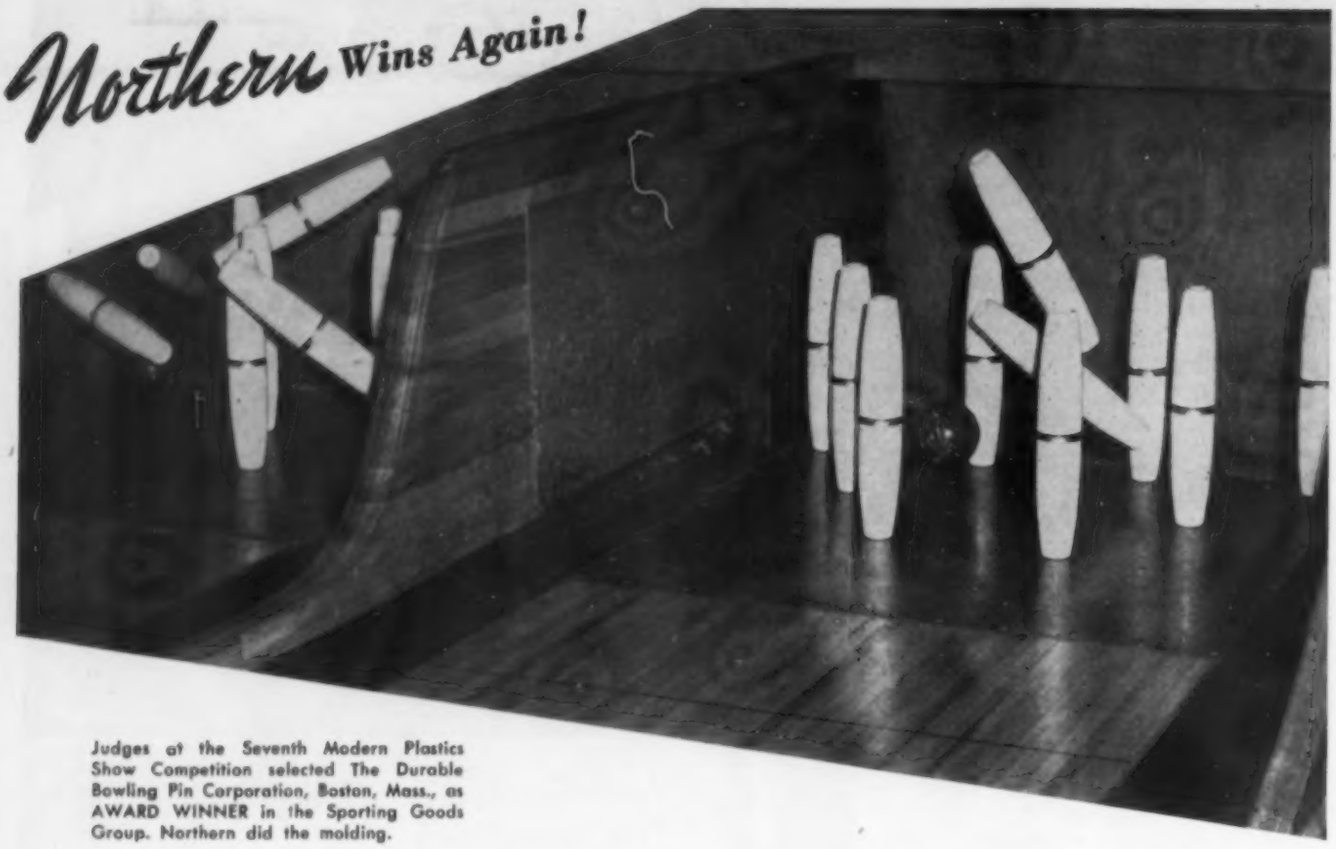
*Patent Applied For

FIRST TO EXTRUDE PLASTICS IN THE WEST

Northern Wins Again!



Judges at the Seventh Modern Plastics Show Competition selected The Durable Bowling Pin Corporation, Boston, Mass., as AWARD WINNER in the Sporting Goods Group. Northern did the molding.

Another AWARD for Northern

Mark up another victory - - a "strike" - - for NORTHERN

The makers of Gold Stripe Bowling Pins decided to be the first to dress up standard maple wood pins in tough plastic. To do a job that had never been done before, they selected Northern. They knew that Northern had not only the facilities, but the designing, engineering and molding experience that is so essential for just such pioneering jobs.

Northern experts are familiar with *all* compounds, know *how* and when to use them, and the best way to mold *each* one. Northern made good its promise to add good looks, uniformity and longer life to bowling pins. Celcon ethyl cellulose was the material used. Why not find out what *Northern* can do to improve the appearance and performance of your product?

"PLASTICS are Right if they're Molded by *Northern*"

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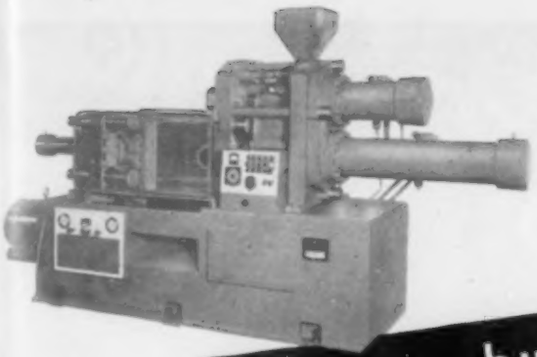

The ROCKFORD HY-JECTOR introduced in 1947 as an 8 oz. machine

is now built in 1948 with a

16 oz. capacity

The 3 in 1 THERMOSETTING Machine that Automatically

- *Makes its own preforms*
- *Preheats them dialectrically*
- *Molds with Injection machine speed*

provides 100% greater molding capacity at a machine cost of only 9% more

Here is the new, larger ROCKFORD HY-JECTOR. You get all the superior features that made the original 8 oz. machine such a sensation . . . the high speed automatic cycle of preforming, preheating and molding that enables molders to turn out up to four times as many precision pieces per hour as are obtainable by standard compression methods.

Machine capacity is double. And, due to the double cycling in tabletting and preheating preforms, operating speeds are only very slightly less than on the 8 oz. Hy-Jector. Thus, actual hourly piece production is almost double . . . *with only one operator!*

The new 16 oz. ROCKFORD HY-JECTOR, at a price increase of less than 9% over the 8 oz. machine, offers economies that cannot be ignored by molders competing price-wise for new business. Write for Bulletin.

Ask about our 16 mm. silent, full color movie showing ROCKFORD HY-JECTOR operation . . . now available for showing without charge to qualified technical groups.

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1238 Parade Street • Erie, Pa., U. S. A.

New dictating machine can easily be carried on business trips. Ethyl cellulose belt records 15 min. of dictation

Sound Recorded on

HEART of a new portable dictating machine is a small, flexible, endless belt made of ethyl cellulose. Only 3½ in. wide by 6 in. long, the belt will faithfully record 15 min. of dictation and may be quickly and easily replaced by a fresh belt. Sound is recorded on the surface of the plastic belt by an electrically operated stylus which displaces the plastic laterally to form the sound track. No material is removed from the belt; no shaving machine is necessary since the inexpensive belts are for one-time use only.

The new sound-recording medium—called Memobelt—and the equipment with which it is used is manufactured by Dictaphone Corp., New York, N. Y. Known as the Time-Master model, the dictating machine occupies desk space only slightly larger than a letter head, may be stored in a desk drawer, and is light enough to be carried on trips. The transcribing machine is equally compact and is equipped with volume, tone, and speed controls.

One of the great advantages which the ethyl cellulose Memobelt holds over existing recording mediums is its small size and light weight. Its shape is such that, when slipped over a curved-end protective card, it can be inserted in a standard small business envelope and mailed for 3¢; in fact, five belts may be so mailed—nested one within another—for the same postage. The curved ends of the protective cards prevent the belt from becoming sharply creased; but even if this should happen fidelity of

Endless plastic belt measures about 3½ by 6 in. and fits into business envelope for mailing or into filing cabinet

Ethyl Cellulose

reproduction will be affected only slightly. The elasticity of the belt, and the spring loading device in the transcriber which places the belt under tension for reproduction, quickly eliminate any trace of creases which might create noise when passed over by the pick-up stylus.

Because the seam in the Memobelt could give rise to undesirable noise in play-back or transcription, Dictaphone has developed special machinery for fabricating the belts from sheet material supplied by Dow Chemical Co. The material comes to Dictaphone in continuous rolls slightly wider than the total length of the finished belt. After inspection, the web is fed into a machine where the edges are trimmed and skived. Here the strip is formed into the shape of a stovepipe and adhesive is applied to the skived edges in a continuous line from a needle-like device. The joint is then formed under heat and pressure and a rotating knife cuts the tube into 3½ in. lengths.

So accurate is this method of joining the ends of the belt that the resulting seam is barely detectable by eye or touch, and affects the stylus but slightly or not at all.

The ethyl cellulose Memobelt, although new in dictating machines, has been tested and proved as a recording medium over a period of 8 years. More than 8,000,000 belts have been successfully used by the Civil Aeronautics Administration for recording air traffic control communications.

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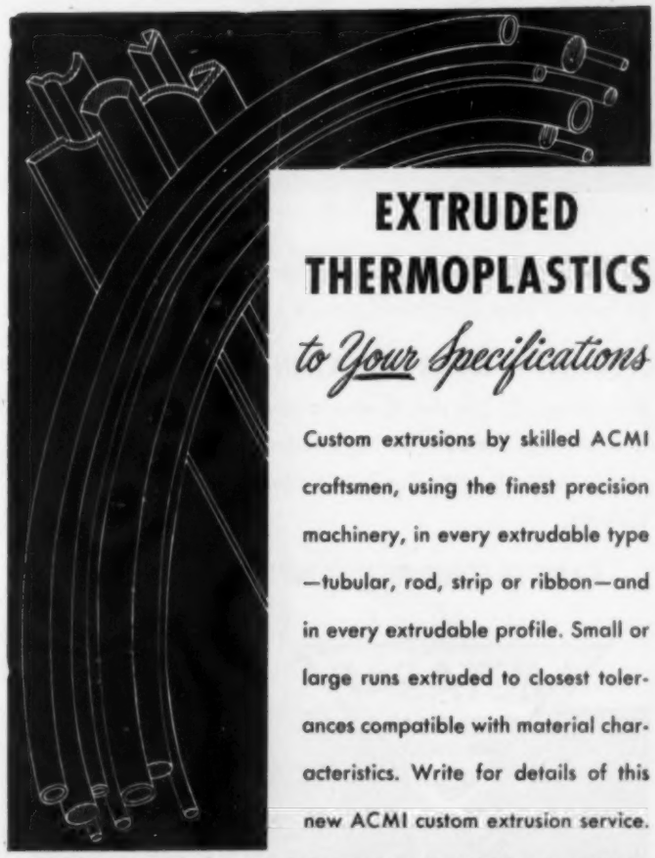

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Photo Courtesy Boonton Molding Co., Boonton, N. J.

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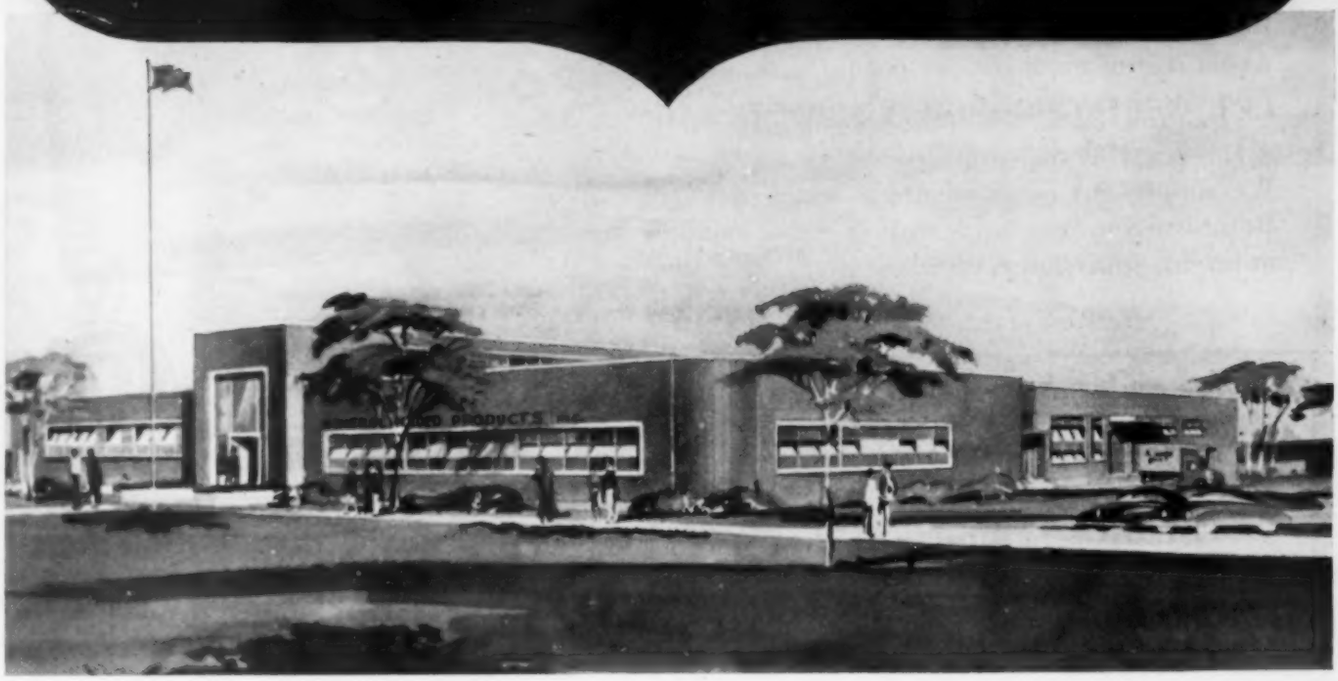

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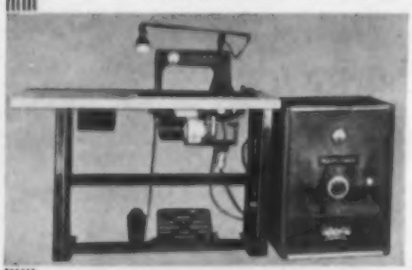

If you fabricate vinyl or any other thermoplastic film or sheeting, make certain to visit Booths 292-293, at the 3rd National Plastics Exposition, September 27 to October 3. At the Mayflower display, you'll see the latest word in fast, high-efficiency electronic heat sealing equipment.

MAYFLOWER ELECTRONIC SEWING MACHINE*—Operates at speeds up to 35 feet per minute. Makes straight seals or turns with equal facility. Hems right to the edge of most materials *without arcing*. Attachments available for gathering, binding and the like. Delivered with Mayflower H.F. 250 watt R.F. generator.

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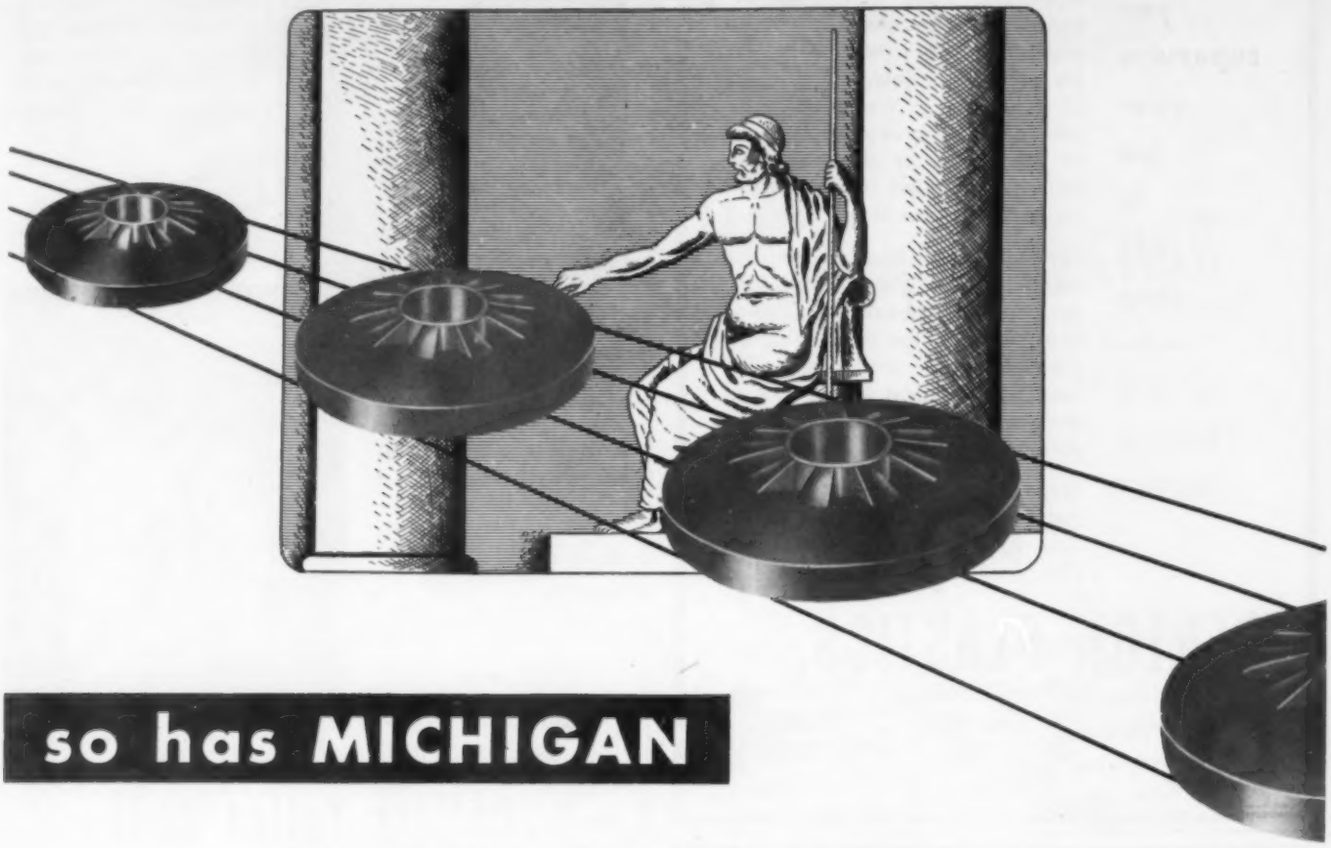
KING MIDAS HAD A TOUCH



so has MICHIGAN

Unlike King Midas' touch which was a curse because it turned everything into gold, the Michigan Molded touch is a blessing to users of industrial and commercial plastic . . . for every assignment Michigan lays its hands to is certain to be a perfectly produced molding job.

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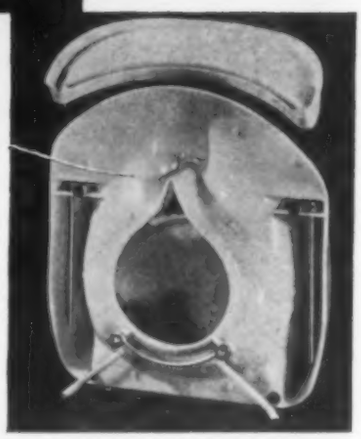
Shown at left is the butyrate seat with folding back, extruded vinyl hold-in strap, molded-in deflector, and injection molded foot-rest



At right is seat in folded-up position. Bottom part of baffle acts as stop which prevents child's seat from sliding off the regular seat

Child's Toilet Seat

THE number of component parts has been minimized and a clean appearance has been achieved by the design of a child's toilet seat molded of Tenite II cellulose acetate butyrate by Victory Plastics Co., Hudson, Mass. The design was adopted after a market survey which included an analysis of the shortcomings of the wooden and plastic seats on the market. Cellulose acetate butyrate was selected as the material because of its high impact strength, luster, light weight, and color.

The seat and the arms are molded in one large piece. The "baffle" or "deflector," which is usually a separate piece, is also molded in as a part of the seat. The bottom part of the baffle is designed to serve as the stop which prevents the child's seat from sliding off the regular toilet seat.

Because of the size and shape of this large single piece, it is produced by compression molding. The butyrate back and foot-rest are injection molded. The foot-rest can be adjusted to any desired position by loosening two set screws which hold the metal rods on which it is mounted.

The strap which holds the child in the seat is made of extruded Vinylite, which is easier to keep clean than the canvas webbing usually used. The metal snap which holds the strap was made too heavy and strong for the baby to loosen.

CRUCIBLE KNOW HOW Scores Again

CHICAGO MOLDED PRODUCTS CORPORATION

1020 NORTH KOLMAR AVENUE · CHICAGO 51 · ILLINOIS · TELEPHONE DICKENS 9000

August 6, 1948

Crucible Steel Company of America
4501 West Cortland Street
Chicago 39, Illinois

Gentlemen:

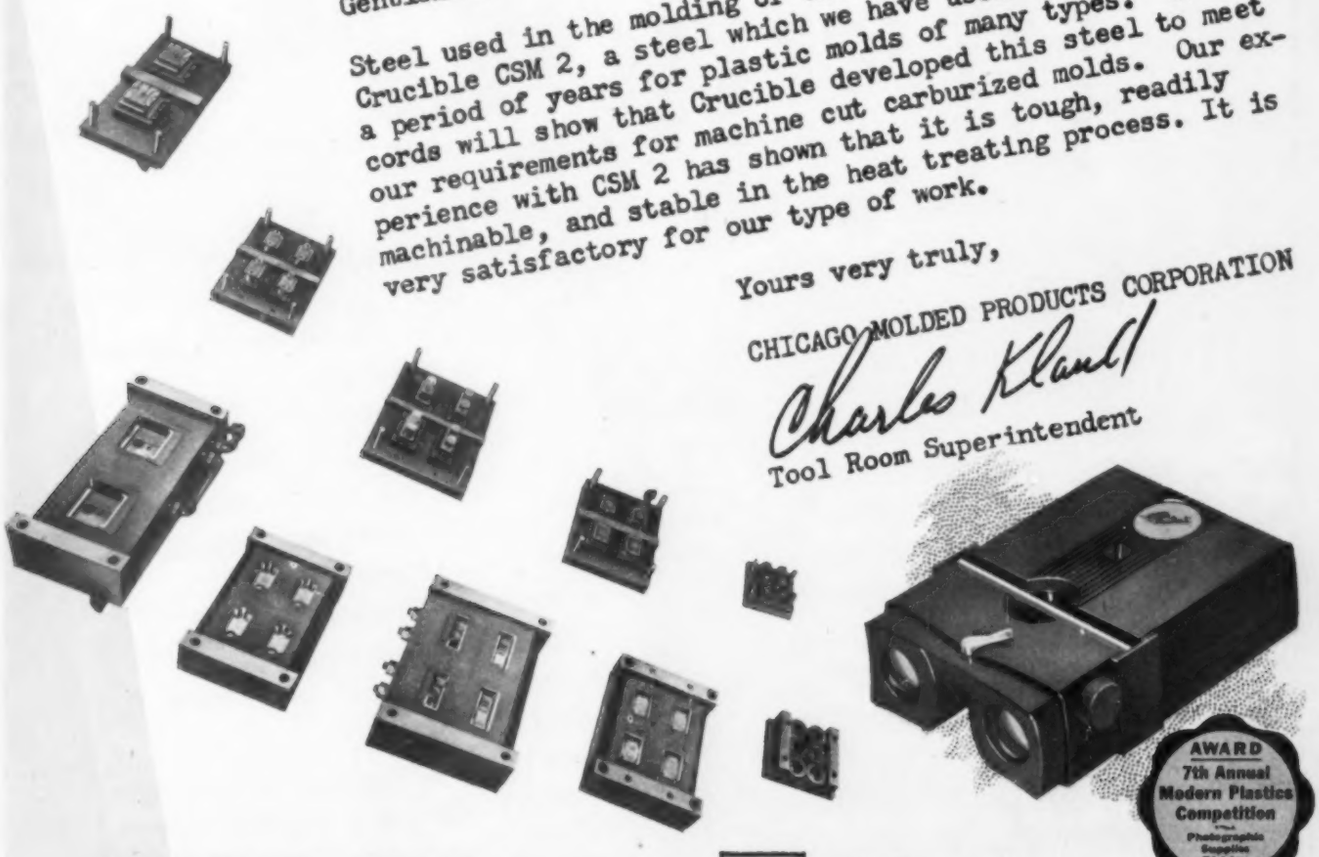
Steel used in the molding of the Stereo Realist Viewer is Crucible CSM 2, a steel which we have used extensively over a period of years for plastic molds of many types. Your records will show that Crucible developed this steel to meet our requirements for machine cut carburized molds. Our experience with CSM 2 has shown that it is tough, readily machinable, and stable in the heat treating process. It is very satisfactory for our type of work.

Yours very truly,

CHICAGO MOLDED PRODUCTS CORPORATION

Charles Kland

Tool Room Superintendent



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(a solid dispersion of ultra fine aluminum powder)

Use Vinylum #45 to add an iridescent, metallic luster to your vinyl articles. When enhanced this way, purses, shower curtains, raincoats, belts and other vinyl products sell faster, sell with less sales resistance.

FOR ALL VINYLS

Vinylum #45 is a coloring medium which is compatible with vinyl resins and plasticizers. It contains a special dispersing agent which makes it mix easily, almost instantly, with vinyl compounds. It blends thoroughly and has exceptional covering power. Color intensity is uniformly distributed throughout the mass. There is no streaking, separating or clustering regardless of "bank" or variable calender conditions.

NO CHANGE IN PROPERTIES

Because of its strong affinity for vinyls, Vinylum #45 causes no change in processing characteristics or physical properties. Flexural and tensile strength are not materially altered. High metal content vinyls are easily obtained with Vinylum #45.

Completely non-dusting, Vinylum #45 will not contaminate plant equipment or other compounds with aluminum dust. It is 100% workable with no loss due to adhesion to containers, spillage or flying dust.

Write today for a free test-size sample of Vinylum #45. It will give your vinyl products the "new look" for greater sales appeal.

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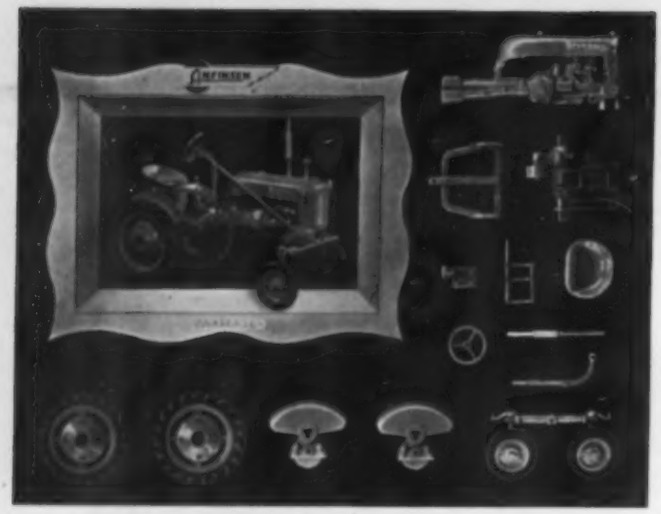

Scale replica of
THE FARMALL CUB TRACTOR
molded of Tenite II with rubber tires.
Stands 4" high, is 6" long and 3" wide.

This model, packed in kit form, to be assembled by the purchaser, created tremendous interest and sales appeal. A noteworthy example of fine craftsmanship and precision engineering.

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Polyethylene Bags for Humus

PEAT humus, widely used by gardeners and nurserymen as a soil builder, is now being packaged in polyethylene bags in order to retain its moisture content. The natural fertilizer, which is a combination of peat (an underwater deposit of residue from natural growth) and humus (organic materials in various stages of decomposition), has often been described as one of the most ideal plant growing sources known. This material, which as a natural soil conditioner promotes the healthy growth of plant life, has long posed packaging problems because of its chemical and material characteristics.

In order to achive best results from peat humus, its natural moisture content when applied should be between 60 and 70 percent. When the moisture content gets below 40% the bacteria in the peat cannot function properly. But 60 to 70% moisture will cause deterioration of ordinary paper, cardboard and certain coated paper packages. In the past, nurserymen have dried the humus to overcome this difficulty. This, however, defeats the purpose of the humus as it tends to kill much of the bacteria content. Re-moistening returns only a fraction of the humus' original freshness. Thus, packagers have been able to package peat humus for limited periods only, and consequently gardeners have to make frequent trips to nurseries in order to obtain fresh humus.

The packaging problem has now been solved after two years of research. Shore Line Industries, Clinton, Conn., in cooperation with the Clinton Nurseries, Clinton, Conn., has developed heat-sealed packages of Bakelite polyethylene film for packing natural peat humus and potting soil. Shore Line, which produces the plastic bag for the Clinton Nurseries, chose polyethylene because it remains intact indefinitely, is resistant to moisture and bacteria, will not stiffen or crack with age, and is pliable.

The package, which consists of an inner lining with the humus in it, and an outer bag for added protection, is produced from a continuous extruded tube. The bags range in capacity from one to four pounds. In larger sizes (10 to 50 lb.) a polyethylene liner is used, with the outer bag made of heavy weight, multiple-walled Kraft paper. In both types of packages, the humus—which is packed at its peak efficiency stage—retains its weight and moisture because it is hermetically sealed. The bags may be resealed by means of a hot iron and a glassine type paper.

CAREFUL ANALYSIS
means
FINER EXTRUSIONS

By carefully analyzing where and how your extruded product is to be used, Apex engineers can determine *exactly* from which material it should be made—assuring you that the finished product will meet all specifications and fulfill the purpose for which it was designed. And then Apex will extrude it to the closest tolerance possible for the material being used.

In addition to extruding nearly every thermoplastic, including polystyrene and lucite, into rods, tubing (as small as .055" OD) and profiles, Apex performs a variety of experimental and development work.

Consult Apex today regarding the assignment which calls for finer extruding of the proper plastic.

APEX PLASTICS, INC.

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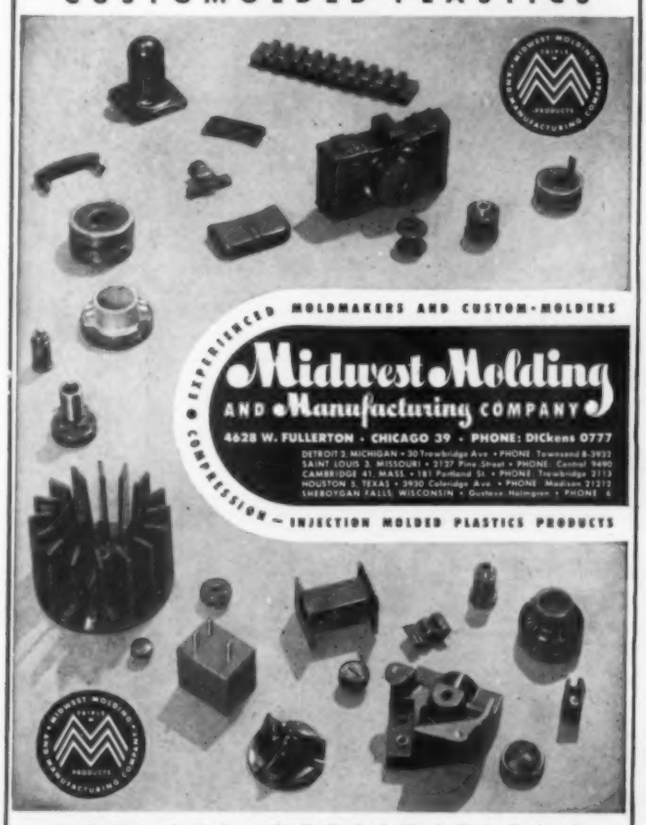
CUSTOMOLDED PLASTICS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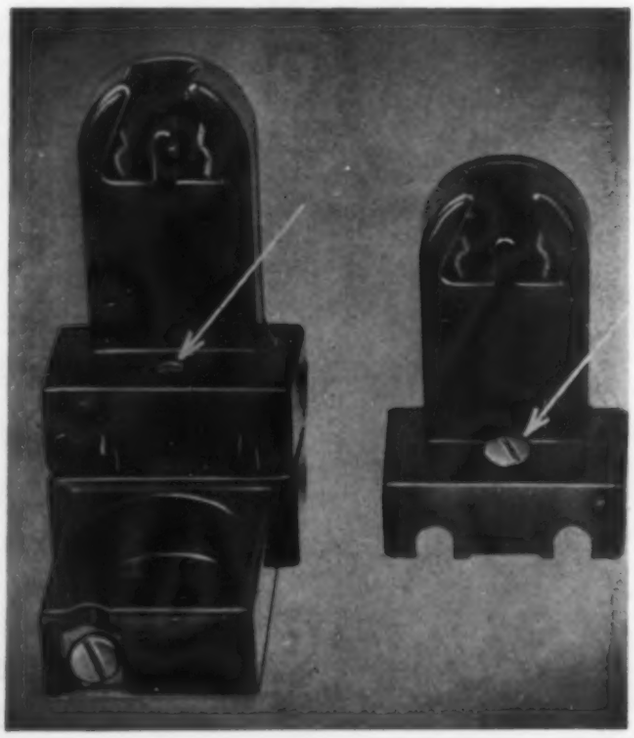

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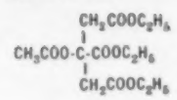
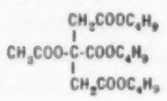
Acetyl Triethyl Citrate 	• Cellulose Acetate • Cellulose Acetate Butyrate • Cellulose Nitrate • Ethyl Cellulose • Polystyrene • Vinyl Acetate • Vinyl Chloride Acetate • Vinyl Butyral	Water white Low volatility Resistant to water Imparts resistance to discoloration by light Low water solubility
Acetyl Tributyl Citrate 	• Vinyl Acetate • Vinyl Chloride • Vinyl Chloride Acetate • Vinyl Butyral • Ethyl Cellulose • Cellulose Nitrate • Polystyrene	Water white Extremely low volatility High water resistance Valuable plasticizer for films and sheeting Imparts to films high resistance to discoloration by ultra-violet light

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(*Continued from page* 193)

jacket, a water spray against the plastic tube emerging from exit end of the cooling die was necessary.

As has been noted in the foregoing, this work evolved around the production of tubing with an inside diameter of 1.250 in. and a wall thickness of 0.020 inch. If no shrinkage occurred in cooling, a cooling sleeve of 1.290-in. diameter should be of the proper size, but this has not proved to be the case. In the case of Vinylite rigid plastic, some shrinkage takes place when the hot plastic contacts the cooling sleeve. Actual results have shown that the extruded tube outside diameter is about 0.010 in. smaller than the cooling sleeve inside diameter. To produce a rigid Vinylite plastic extruded tube of 1.290-in. outside diameter with wall thickness of 0.020 in. it is, therefore, necessary to use a cooling sleeve of 1.300 in. inside diameter.

Extrusion of other plastics

(*a*) *Vinylite non-rigid plastic.* Vinylite elastomeric compounds containing under 15 to 20 percent plasticizer may be formed by the technique outlined previously, but not those having higher plasticizer concentration.

(*b*) *Tenite II.* This material (and specifically Formula 205E plasticity H) has been successfully extruded, with the assembly and technique here described, with good success. However, Tenite II appears to expand much more than Vinylite rigid plastic when it emerges from the forming die so that the die and pin sizes noted for Vinylite plastic do not apply for Tenite II.

For the latter, an 8-in. long brass, ⅛ in. thick, cooling sleeve matted and flash chrome plated (0.0001 in.) was employed. Tubing with a 0.020 in. wall and 1.246 in. inside diameter was extruded with a cooling sleeve of 1.310-in. inside diameter. The forming die had a diameter of 0.859 in. and the forming pin 0.800 in. diameter.

Direct Molding of Plastics

(*Continued from page* 208)

The extremely great dependence of strength on water content in our specimens necessitated close scrutiny of the conditioning procedure employed. Comparison of tensile strengths could easily be vitiated by different water contents. Generally, moldings were done with powders containing 20% water, whereas the molded specimens equilibrated with an atmosphere of 50% relative humidity and 25° C. would have a content of only about 10% water. The problem was to determine how much

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time specimens would require to come into equilibrium under these standard conditions of moisture and temperature. Table II shows that there was no appreciable difference in the strength of our spindle specimens conditioned for four weeks or one week. A conditioning period of one week was therefore established as a safe minimum time to obtain equilibrium, at least in the crucial central part of the test spindle. In practice, the test specimens were conditioned according to the A.S.T.M.[13] method for type R materials for at least a week and were then tested under the same conditions, namely, 50 ±2% relative humidity at 25 ±1° C. The tensile strength figures in the tables are averages of at least five specimens.

Flexural strength (modulus of rupture) was determined under the same conditions of temperature and humidity described above. The A.S.T.M. method[11] as designed for 0.5 by 0.5 by 5-in. molded bars was followed, except that the conditioning period was extended to two weeks and that the number of tests averaged was limited to three. The testing machine used was that described by Brother, Suttle and McKinney[14]. The flexural strengths (Table IV) are of interest for comparative purposes, but since they are in most cases about equal to the corresponding tensile strengths they are doubtless somewhat low in an absolute sense. This is probably due to the difficulty of properly conditioning the test bars. Although the conditioning period of a week was shown to be sufficiently long to permit equilibration of the moisture in the tensile test specimens with that of the conditioning atmosphere, it was recognized that such equilibration could not be attained with the thicker flexural test bars even in two weeks; nor was equilibration to be expected in any reasonably longer time. For convenience, therefore, the conditioning period was kept uniformly at two weeks.

Molds for all test specimens met A.S.T.M.[15] specifications. The procedure used for molding all the test specimens, as previously described[16], involved a maximum pressure of 5000 p.s.i., a temperature of 117 to 120° C. and, except as otherwise stated, a water content of 20 percent. It was not always necessary to use 20% water at molding to obtain good flow, but this condition was adhered to so that all results would be on a comparable basis. The percent moisture was determined by drying to constant weight at 105° C.

Properties of molded casein plastics

In preparing protein molding powders, Brother and coworkers [6, 17] generally hardened the soybean

(*Please turn to page* 298)

[13] "Tentative methods of conditioning and classifying for conditioning plastics and electrical insulating materials for testing," A.S.T.M. Designation: D 618-44T.

[14] "A simple flexure-testing machine for plastics," by G. H. Brother, W. C. Suttle, and L. L. McKinney, A.S.T.M. Bull. No. 109, 13-16 (1941).

[15] "Tentative specifications for molds for test specimens of molding materials used for electrical insulation," A.S.T.M. Designation D 647-42T.

[16] "Water absorption of plastics molded from acylated casein," by W. G. Gordon, A. E. Brown, and C. M. McGrory, Ind. Eng. Chem. *38*, 90-94 (1946).

[17] "Casein plastics," by G. H. Brother, Ind. Eng. Chem. *32*, 31-33 (1940).

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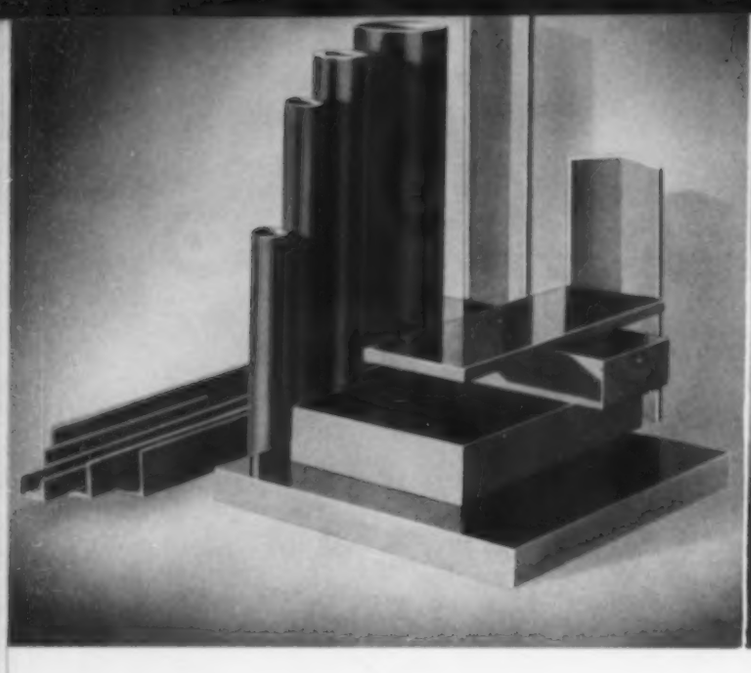

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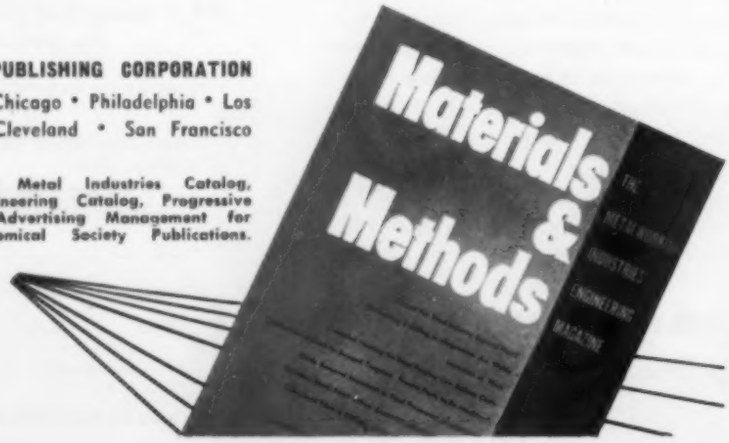

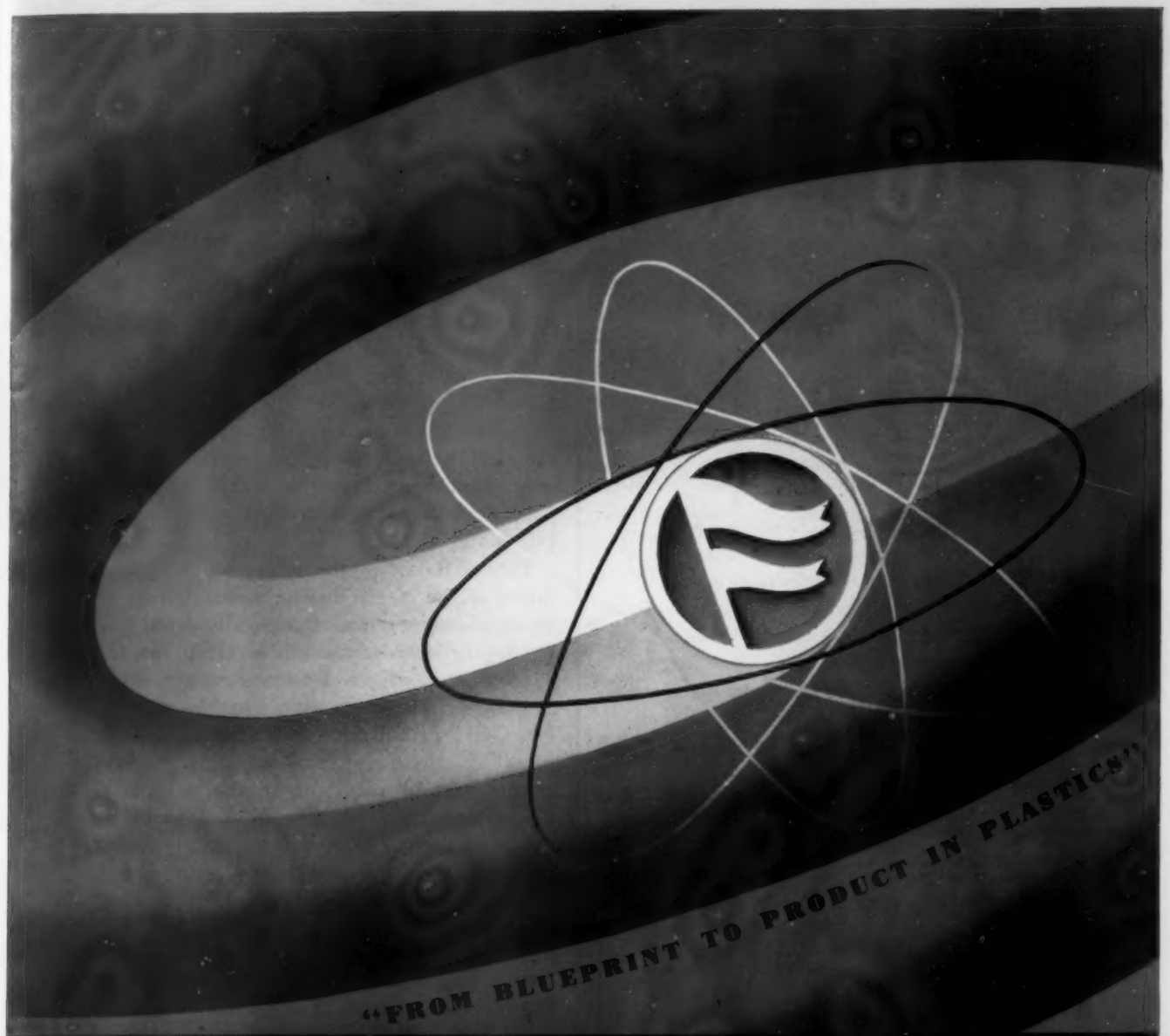

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protein or casein by immersing the air-dried material in two parts, by weight, of 40% formaldehyde at room temperature for 24 hours. These authors reported no figures on strength of molded specimens. We found the tensile strength of such specimens made from casein previously treated with formalin as described by them to be about 5000 p.s.i. Consequently, it was first thought that the increase in tensile values to 9000 to 10,000 p.s.i. (Exp. Nos. C-10, C-42, etc. of Table IV) obtained for molded samples from casein which had been treated with both potassium cyanate and formaldehyde were due to the cyanate treatment. Control experiments (Exp. Nos. C-30, C-45 of Table IV), in which casein was subjected to the same conditions of pH, temperature, etc., but without potassium cyanate, showed, however, that some factor involved in the hardening procedure had a profound effect on the strength of this material.

Table III shows the effect of the physical condition of the casein during formaldehyde hardening on tensile strength. Commercially dried casein hardened with 10% formaldehyde (Exp. No. C-32) gave specimens having a tensile strength of 7220 p.s.i. If the casein were dissolved and precipitated (Exp. No. C-31) or hydrated by "swelling" in water for 3 hr. (Exp. No. C-74), a noteworthy improvement in tensile strength resulted. Another sample (Exp. No. C-73) was dissolved, precipitated, and dried under mild conditions. It had significantly lower tensile strength than the comparison sample (Exp. No. C-31), which was treated identically except for the drying step. It is apparent from these data that the physical condition of the casein during hardening has an appreciable effect on the tensile strength of the molded product. If due consideration is paid to this effect, tensile strengths in the range of 8000 to 10,000 p.s.i. can readily be obtained. Regarding hardening of casein in solution with formaldehyde, a point which is not dealt with particularly in Table IV should be mentioned, namely, that the pH of the solution (subsequently adjusted to the isoelectric pH) apparently has little effect on strength or other properties of the molded product.

Preparation of carbamido casein

Isocyanate reagents, especially phenyl isocyanate, have been frequently employed to incorporate new groups in proteins. Generally they have been used in an aqueous medium. Thus, Hopkins and Wormall[18] treated casein and other proteins with phenyl isocyanate and *p*-bromophenyl isocyanate at pH 8 and 0° C. The product of reaction with the latter reagent contained bromine approximately equivalent to the decrease in free amino group. The same authors[19] later obtained immunological evidence

[18] "Phenyl isocyanate protein compounds and their immunological properties," by S. J. Hopkins and A. Wormall, Biochem. J. 27, 740-753 (1933).
[19] "Phenyl isocyanate protein derivatives and their immunological properties. III. The amino-acid derivatives and serological inhibition tests," by S. J. Hopkins and A. Wormall, Biochem. J. 28, 228-236 (1934).

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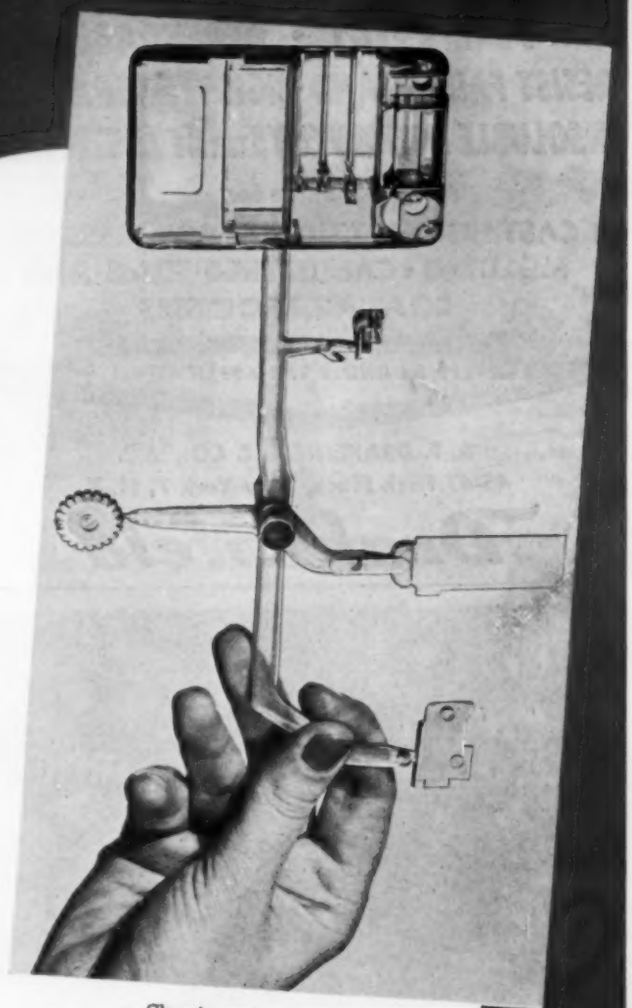

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emphasizing the ε—amino group of the lysine unit in proteins as the site of reaction. Similar results pointing to the role of the amino group have been reported in the reaction of isocyanates, mostly the phenyl derivative, in aqueous media with insulin[20], horse serum albumin[21], tobacco mosaic virus[22], and egg albumin[23]. Fraenkel-Conrat, Cooper and Olcott[23] have found that the —SH groups of protein may be substituted under certain conditions in water solution and that still other groups may react when the solvent is anhydrous pyridine. Search of the literature, however, revealed no reference to the introduction of unsubstituted carbamido group into protein by reaction of its free amino group with an appropriate reagent. It was necessary to devise a procedure based on those used for amino acids.

Carbamido casein was made by treating acid or rennet casein with potassium cyanate. In the work reported here acid casein was used, since rennet casein gave a product with inferior properties. One kg. of a high-grade commercial acid casein was stirred mechanically into 10 l. of water containing 100 g. of potassium cyanate. First it was stirred at room temperature for 15 min. to allow the casein to swell. Steam was then applied to the jacketed vessel and, with continued stirring, the temperature was raised to 85° C. in the course of 40 minutes. Heating was continued at this temperature long enough to make a total heating period of 2 hr., during which time the casein dissolved. At this point, the pH of the solution was 7.2 to 7.5. The modified casein was then diluted with an equal volume of water, causing the temperature to drop to about 45° C., and 3 N hydrochloric acid was slowly added with vigorous stirring to precipitate the product at pH 3.3 to 3.8. The precipitate was then filtered, washed with water until free of chloride ion, sucked "dry" and dried at not more than 40° C. in an oven with mechanical circulation of air. The weight of product was slightly greater than that of the casein used on a moisture-free basis. Analyses of two preparations of carbamido casein showed, respectively, 2.08 and 2.10% ash (moisture-free basis, as determined by calcium acetate procedure) and 15.46 and 15.29% nitrogen (moisture and ash-free basis), whereas the figures for the original casein were 2.43 and 15.09. Other preparations were made in exactly the same fashion as described above except that 50 or 150 g. of potassium cyanate were used per kilogram of casein.

Preparations were also made of carbamido casein treated with formaldehyde. Just previous to the final washing, as described above, the carbamido

(*Please turn to page* 304)

[20] "Studies on crystalline insulin. XVIII. The nature of the free amino groups in insulin and the isolation of phenylalanine and proline from crystalline insulin," by H. Jensen and E. A. Evans, Jr., Biol. Chem. *108*, 1-9 (1935).
[21] "The conjugation of horse serum albumin with 1,2-benzanthryl isocyanates," by H. J. Creech and R. N. Jones, J. Am. Chem. Soc. *62*, 1970-1975 (1940).
[22] "Derivatives of tobacco mosaic virus. I. Acetyl and phenylureido virus," by O. L. Miller and W. M. Stanley, J. Biol. Chem. *141*, 905-920 (1941).
[23] "Action of aromatic isocyanates on proteins," by H. Fraenkel-Conrat, M. Cooper, and H. S. Olcott, J. Am. Chem. Soc. *67*, 314-319 (1945).

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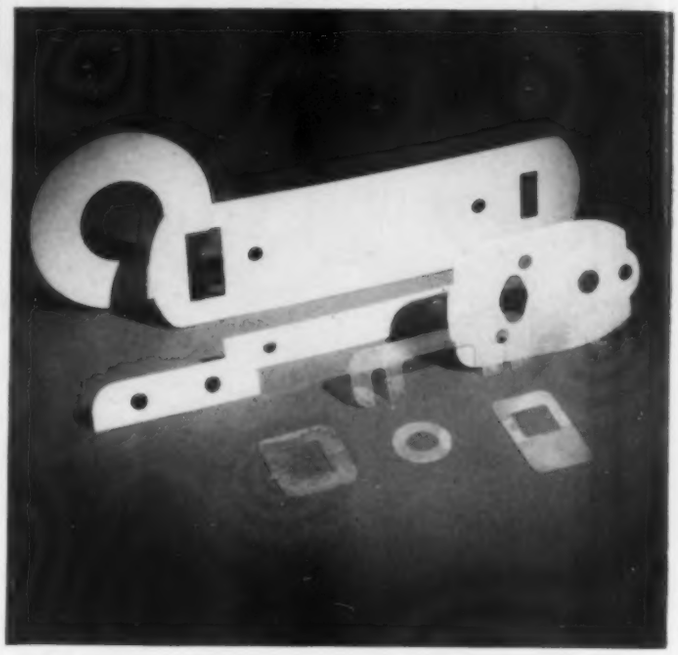

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casein was suspended in sufficient water to give a total volume of 13.5 liters. It was then dissolved by the dropwise addition of 2 N sodium hydroxide until the solution was just faintly basic to phenolphthalein. To this solution was added 1.5 l. of 40% formalin, giving a 4% formaldehyde solution. The mixture was held at 60° C. for a total heating time of 2 hr.; then precipitated, filtered, washed, and dried in the manner previously described.

This procedure has been designated as the "two-step" solution method. The "one-step" solution method is identical with the above except that the carbamido casein is not precipitated and redissolved before hardening in solution with 4% formaldehyde. The two methods differ in the following respects: in the former, formaldehyde hardening is done at an initial pH of 8.5—9.0; in the latter, the hardening is done at an initial pH of 7.2—7.5 and, in addition, in the presence of small amounts of by-product urea and ammonia.

Formaldehyde hardening was also done on the material in suspension. In this case, the moist cake of twice-washed carbamido casein was made into a 10% slurry in a 10% solution of formaldehyde, and let stand for 3 days at room temperature. The product was filtered, washed and dried as usual.

Evidence of substitution with carbamido group

Determination of the nitrogen content has often proved useful in following the chemical modification of proteins. However, it was found that the change in nitrogen *percentage* entailed by the conversion of casein to carbamido casein was hardly sufficient for convenient estimation of the amount of substitution. Consequently, attention was turned to the method of Doherty and Ogg[24] for determination of amino nitrogen in insoluble proteins. Figure 2 shows results obtained from two samples of carbamido casein, (prepared in the same manner) indicating roughly that about 80% of the free amino group has been substituted. The curves, which differ from that for casein itself, were compared with those for two model substances, hydantoic acid and ε-carbamido-*n*-caproic acid. These compounds were prepared by the treatment of glycine and ε-amino-*n*-caproic acid, respectively, with potassium cyanate. The melting points of 180 and 179 to 181° C., respectively, agreed with those recorded in the literature, and the values for nitrogen of 23.95 and 15.93% agreed with the theoretical values. Both these substances react to a considerable extent with nitrous acid (Fig. 2). Presumably the carbamido group in protein would do likewise, so that the figure for free amino group would have to be revised downward and that for carbamido group upward. The close similarity of the graphs for carbamido casein and for ε-carbamido-*n*-caproic acid suggests that the ε-amino group of the lysine unit of protein has been largely converted to

(*Please turn to page* 307)

[24] "Modified amino nitrogen apparatus for insoluble proteins," by D. G. Doherty and C. L. Ogg. Ind. Eng. Chem., Anal. Ed. *15*, 751-753 (1943).

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the carbamido group. The virtual cessation of nitrogen liberation from hydantoic acid at about two-thirds of an equivalent may possibly have its explanation in partial cyclization to the less reactive hydantoin. The graphs for formaldehyde-hardened carbamido casein and formaldehyde-hardened casein of Fig. 2 speak for the reaction of formaldehyde with the carbamido as well as the amino group.

The altered base-combining capacity of carbamido casein is shown by the difference in the titration curves of carbamido casein (Preparation No. C-35) and unmodified casein of Fig. 3. The original pH was 5.30 for the unmodified casein and 5.35 for the carbamido casein, and complete solution was not attained until the pH reached about 6.5. The value of 4.5 ml. of 0.1 N NaOH per gram represents the difference of the two substances between pH 7.2 and 9.5; this difference is equivalent to 0.63% of amino nitrogen, which may be regarded as replaced with the non-dissociated urea group. In other words, these data indicate that at least two-thirds of the amino groups are converted to carbamido radicals. An analysis of other titration curves in which the starting pH of each solution was 6.75 gave results in agreement with the above. A similar result was obtained by formol titration. The diacetyl monoxime colorimetric method for carbamido group[25, 26] was also applied, a color filter and photoelectric colorimeter being used. The values obtained were hardly quantitative but gave qualitative confirmation of extensive incorporation of the carbamido group.

Properties of molded carbamido casein

Certain physical properties of plastics molded from several different preparations of carbamido casein, as compared with those of casein, are listed in Table IV. The results indicate that treatment with 10 g. potassium cyanate per 100 casein is somewhat more effective than with 5 g. of the reagent in curtailing water absorption. Hardening with formaldehyde, which accomplished considerable reduction in water absorption of unmodified casein and even of acetylated casein[16], has little similar effect on higher fatty acid derivatives[16, 27] or on carbamido casein. This lack of effect on the last-named substances is consistent with elimination of the large water-absorbing tendency of the amino group[28]. On the other hand, analysis of the formaldehyde-hardened carbamido casein for formaldehyde showed that the formaldehyde-binding capacity of casein (compare footnote 29) is not much altered in the conversion to carbamido casein. This is in contrast to the effect of acylation[16, 30] in decreasing the affinity for formalde-

[25] "The carbamido diacetyl reaction: A test for citrulline," by W. R. Fearon, Biochem. J. 33, 902-907 (1939).
[26] "A colorimetric method for the determination of citrulline," by A. G. Gornall and A. Hunter, Biochem. J. 35, 656-658 (1941).
[27] "Plastic properties of higher fatty acid derivatives of proteins," by W. G. Gordon, A. E. Brown, C. M. McGrory, and E. C. Gall, Ind. Eng. Chem. 38, 1243-1245 (1946).
[28] "Water absorption of proteins. I. The effect of free amino groups in casein," by E. F. Mellon, A. H. Korn, and S. R. Hoover, J. Am. Chem. Soc. 69, 827-831 (1947).
[29] "Combination of formaldehyde with casein," by A. P. Swain, E. L. Kokes, N. J. Hipp, J. L. Wood, and R. W. Jackson, Ind. Eng. Chem. (in press).
[30] "Higher fatty acid derivatives of proteins," by W. G. Gordon, A. E. Brown, and R. W. Jackson, Ind. Eng. Chem. 38, 1239-1242 (1946).

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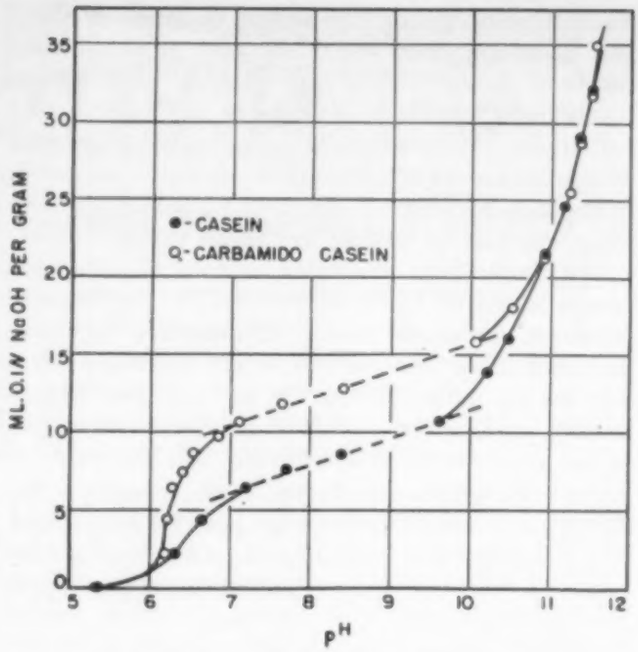

3 — Titration curves for casein and carbamido casein

hyde. The evidence here, to be sure, is rather indirect but does point to the reaction of formaldehyde with the carbamido group in the protein. Hardening of a suspension of carbamido casein with formaldehyde results in somewhat lower water absorption than hardening in solution; strength values are about the same in both cases. The strength of carbamido casein which has not been hardened with formaldehyde is definitely lower than that of the hardened material. The individual values on the former are erratic and undoubtedly low because of the tendency of the material to check during preparation and conditioning of the specimen. The main value of the formaldehyde hardening of carbamido casein is to increase durability and toughness.

Value of plasticizers

The equilibrium water content of many protein plastics, including those described in this paper, is about 9 to 10% at 25° C. and 50% relative humidity. As a consequence, moldings made with a 20% water content lose water and shrink under standard testing conditions as well as under ordinary atmospheric conditions. Shrinkage may be accompanied by warping. Dimensional stability can be obtained by limiting the water content to 10% and replacing the water required above this level with a non-volatile organic plasticizer. Without organic plasticizer, a water content approaching 20% is required, particularly with formaldehyde-hardened casein, to obtain good plastic flow, as shown by the molding characteristics of disks molded 1/16 in. thick for the water-uptake tests. The dimensional stability of moldings made with 10% water in contrast to those made with 20% water was determined by measurement of the diameter of the tensile strength specimens

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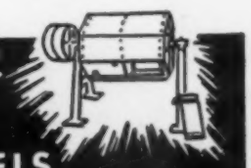

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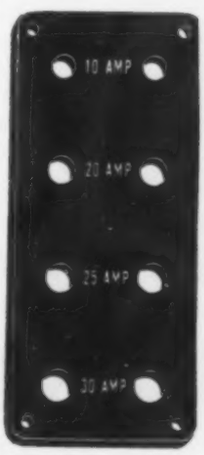

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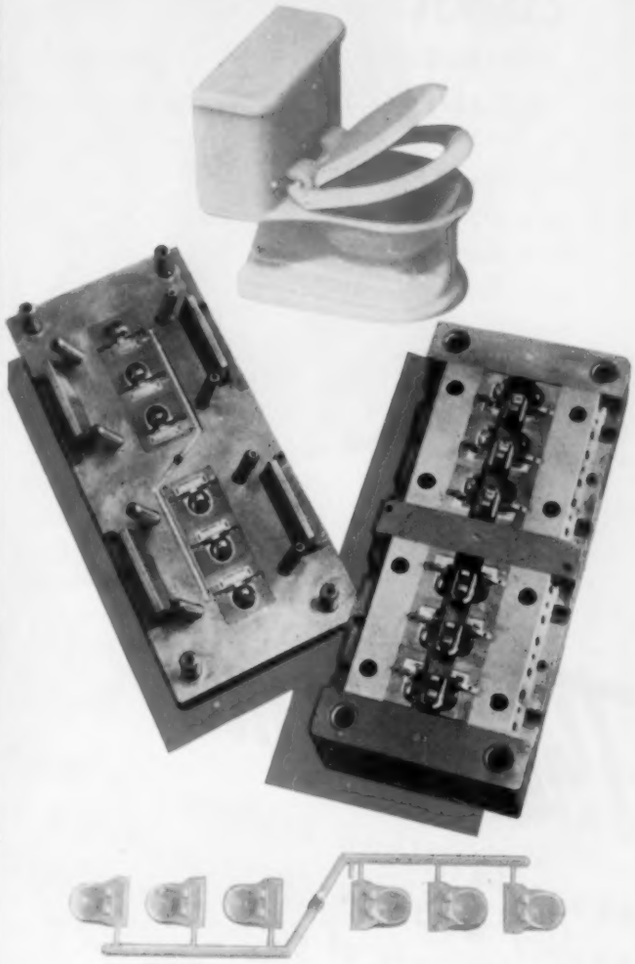

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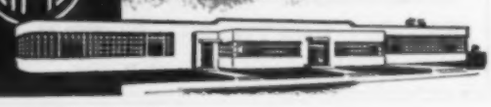

(spindles) before and after conditioning at 50% relative humidity and 25° C. Our conditioned spindle specimens molded with 10% water did not change in diameter, whereas those molded with 20% water decreased in diameter 0.006 in., or 3% of the total.

Many of the substances so frequently referred to in the literature[1, 31] as plasticizers for casein, including polyalcohols and a variety of substituted amines, invariably increase the water uptake of the molded casein plastic. Among the compounds which do not affect the water uptake adversely and which may be incorporated in a simple manner is the commercially available Santicizer-9 [32] (hereinafter referred to as S-9), a mixture of *o*- and *p*-toluenesulfonamide. Preliminary experiments showed that organic plasticizers cannot be adequately mixed with casein in a mortar or ball mill. In the work reported here the plasticizer was introduced in an effective manner by co-precipitating the casein and plasticizer. Santicizer-9 and related plasticizers are particularly amenable to this method because of their solubility in alkali. When the protein material was hardened in solution with formaldehyde, S-9 was added after the formaldehyde but before precipitation; when hardening was done with the material in suspension,

[31] "La plastification de la caseine," by J. Delorme, Rev. Gén. Mat. Plastiques *11*, 375-377, 379 (1935).
[32] The mention of commercial products does not imply that they are endorsed or recommended by the U. S. Department of Agriculture over others of similar nature not mentioned.

Table V.—Effect of Added Plasticizer on Physical Properties of Carbamido Casein and Casein Plastics[a]

Exp. No.	Formaldehyde hardening of protein	Plasticizer in plastic[b]	A.S.T.M. 24-hr. water absorption	Approx. satn. water content	Tensile strength	Reduction in approx. satn. water content[c]
		%	%	%	p.s.i	%
		Casein				
C-30	Solution	0.00	15.3	33.8	9,500	
C-38	"	1.95	13.4	30.5	8,900	10
C-38-1	"	4.68	11.5	29.2	8,500	14
C-46	"	5.07	10.7	28.2	9,550	17
C-31	Suspension	0.0	11.4	30.9	9,550	
		Carbamido Casein[d]				
C-29	Solution	0.00	7.9	26.7	9,500	21
C-29P	"	0.56	7.5	27.0	9,500	20
C-34a	"	2.06	6.5	23.5	9,850	30
C-34b	"	3.79	5.8	22.7	10,300	33
C-34c	"	8.42	4.7	21.0	9,500	38
C-27	Suspension	0.00	5.1	24.4	9,860	21
C-40	"	1.39	3.5	20.9	.....	32

[a] Plasticizer added prior to precipitation, and co-precipitated with product. Although the co-precipitation method yields homogeneously plasticized products, the method is not economical for S-9, notwithstanding the rather low solubility of S-9 in water. The specimens without S-9 (also specimens C-29P) were molded with 20% water, and those containing S-9 with 10% water.
[b] Calculated from sulfur analysis.
[c] In calculating reduction of water uptake, all preparations hardened with formaldehyde in solution are compared with C-30; all hardened in suspension are compared with C-31.
[d] One-step procedure, 10 g. KCNO per 100 casein.

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the S-9 was added before precipitation with acid and treatment with formaldehyde.

In contrast to the results obtained with S-9 and commercial soybean protein by others[33], our experiments showed that S-9 materially improved the water uptake and the flow of casein and carbamido casein. The decrease in water uptake (Table V) was greater than would be expected if the S-9 acted merely as an inert filler. The improvement in the values for the 24-hr. water absorption, as compared with the values for the approximate saturation water content, shows that the rate of water uptake was substantially affected by the plasticizer, S-9. The tensile strength was not decreased in moldings having a plasticizer content as high as 8% and, as other experiments have shown, suffered only a small loss when the plasticizer content was raised to 20 per cent. The reduction in water uptake for equal amounts of S-9 was greater with formaldehyde-hardened carbamido casein than with formaldehyde-hardened casein. As pointed out above, this plasticizer was a mixture of *o*- and *p*-toluenesulfonamide. When it was substituted with one ethyl radical in the amide group, the product appeared a little less satisfactory. The dialkyl substituted amide did not even seem compatible with casein and its derivatives.

The economics of plasticizing casein and carbamido casein with S-9 by co-precipitation are not favorable to large-scale application. However, commercial casein or carbamido casein like the cellulose and vinyl resins, can be plasticized on heated differential rolls. The hardening agent, paraformaldehyde, may be added to the roll-milling mixture or the required amount of formalin may be added to the plasticized material after roll-milling to complete the preparation of the plasticized casein molding powder. Detailed reporting of the particulars concerning this phase of the investigation and the large-scale preparation of carbamido casein will be deferred.

Practical effect of modifying treatments

The data show that the affinity of casein for water is substantially reduced by introduction of just the carbamido group. This reduction in water uptake is greater than that which can be accomplished by treatment of casein with formaldehyde alone. Moreover, the adhesive properties of carbamido casein are not destroyed, whereas formaldehyde-treated casein does not exhibit any appreciable adhesion. The utility of carbamido casein, with its reduced affinity for water, for applications in which adhesive qualities are essential, has not been fully evaluated. However, carbamido casein has been extruded in the same manner as casin to produce monofils or bristles, and unlike acetyl or benzoyl casein, the textile fiber from carbamido casein is not weak and brittle. (*Please turn to next page*)

[33] "Protein plastics from soybean products. Plasticization of hardened protein material," by G. H. Brother and L. L. McKinney, Ind. Eng. Chem. 31, 84-87 (1939).

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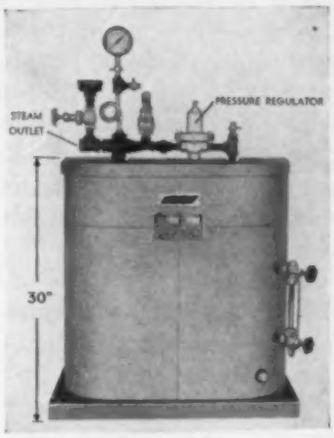

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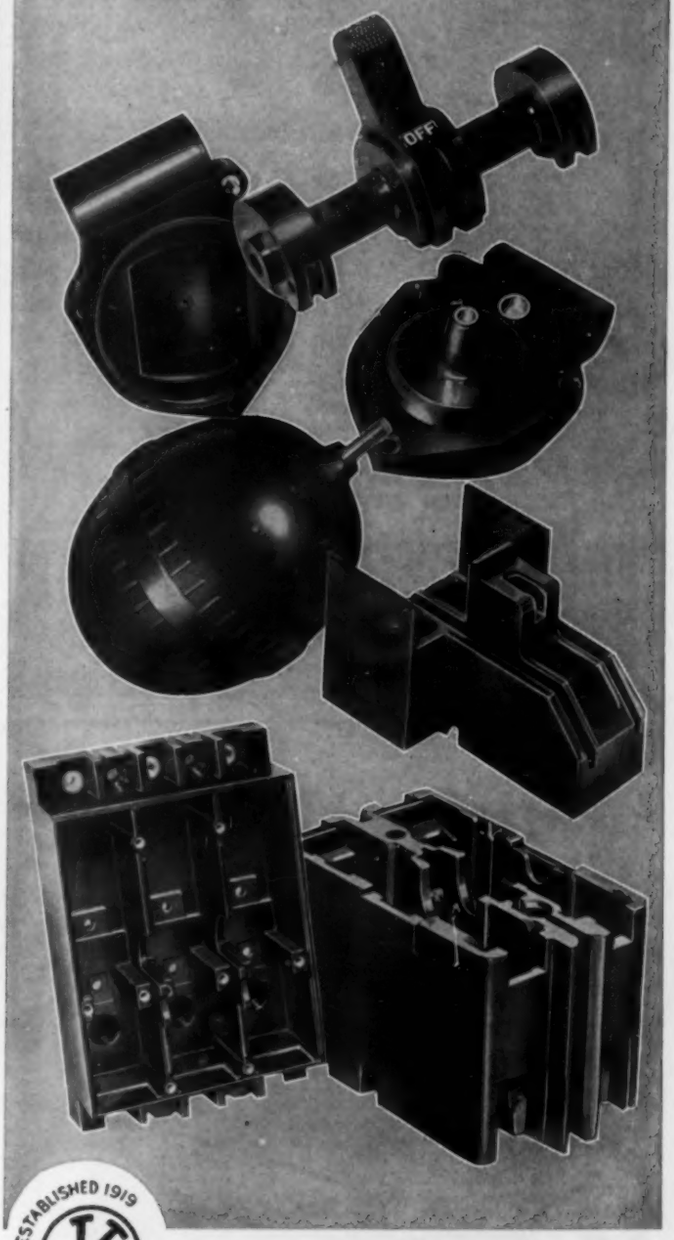

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Moldings made from carbamido casein not treated with formaldehyde check and become brittle, but moldings made from the formaldehyde-treated material are tough and durable, although the water uptake is essentially unchanged. As with casein, formaldehyde treatment affects the plastic flow of carbamido casein but to a less degree. A good estimate of the relative plastic flow can be obtained by observing the molding of thin discs 2 in. in diameter and 1/16 in. thick). Although the plastic flow of formaldehyde-carbamido casein is superior to that of formaldehyde-casein, moldings of the former may require more than 10% water; if so, they will shrink when conditioned[13] or when subjected to ordinary atmospheric conditions. The carbamido substituent materially improves molded specimens saturated with water. Water-absorption specimens of unhardened or formaldehyde-hardened carbamido casein when allowed to stand in water at 25° C. until saturated are rigid and increase 0.03 in. per in. in diameter, as compared with formaldehyde-hardened casein specimens which are rubbery and increase 0.12 in. per in. diameter. The latter specimens were attacked by micro-organisms, but the former specimens did not show any evidence of micro-organism attack even after being in the same water-saturated atmosphere for three years.

Conclusions

Direct moldings of simple objects can be made from casein and carbamido casein which have been prehardened with formaldehyde. The modification of casein by incorporation of the carbamido residue yields molded materials superior to formaldehyde-hardened casein in respect to water absorption without affecting strength. Moldings of materials prehardened with formaldehyde containing 10% water in conjunction with an organic plasticizer are dimensionally stable, and the water uptake of these materials, particularly carbamido casein, is substantially reduced by the organic plasticizer. Athough treatment of carbamido casein with formaldehyde does not cause an additional decrease in water absorption, it results in a substantial improvement in toughness and durability. In this connection data are presented indicating that the ureido group reacts with formaldehyde. Carbamido casein possesses the properties of casein which make it valuable as a raw material for many industrial applications. In some respects, carbamido casein is superior to casein.

Acknowledgment

The authors are indebted to Rudolph Hellbach for the design and construction of the tensile strength test grips and for the preparation of the tensile specimens. They also wish to thank T. J. Dietz through whose cooperation many of the physical tests were obtained; C. L. Ogg and C. O. Willits for most of the chemical analyses; and E. L. Kokes and S. J. Viola for technical assistance.

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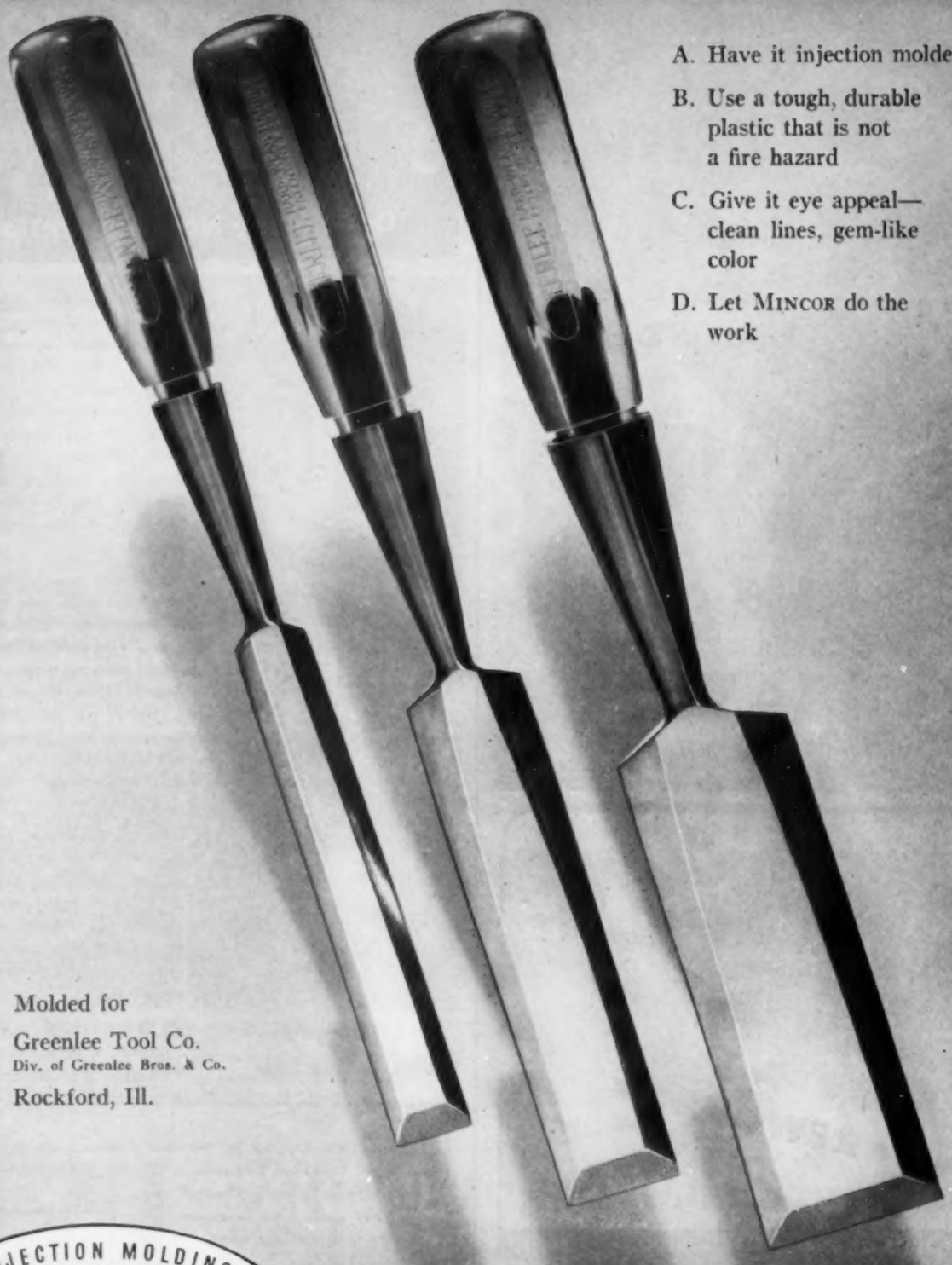

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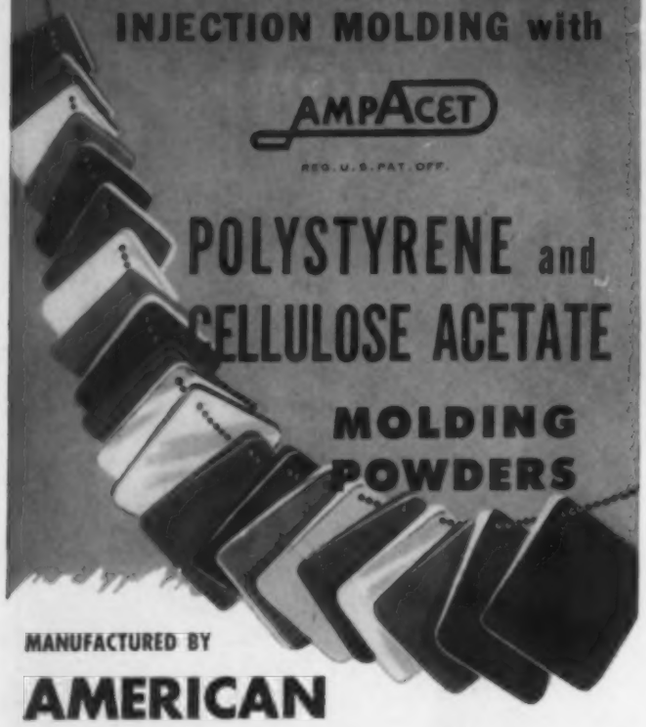

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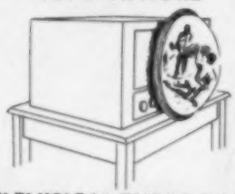

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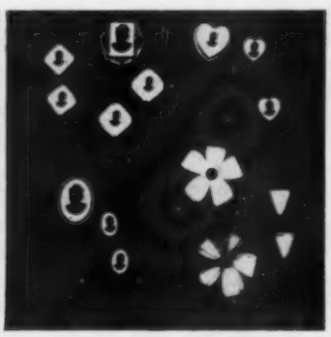

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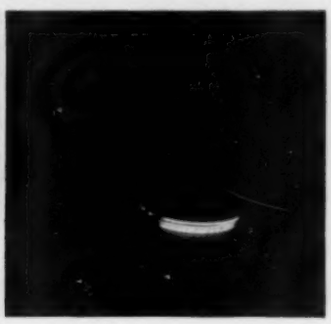

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INTERPRETATIONS OF THE CURRENT NEWS

By R. L. VAN BOSKIRK

Phenolic front

DECLINING figures in phenolic molding powder production for the Summer months are a false indicator of real conditions in the industry, according to experienced authorities in the trade. It is true that consumption dropped to as low as 11 million lb. in the Summer from a record-breaking high of almost 20 million in March, 1948, and a figure of around 17 million lb. per month during the latter half of 1947 but there are several qualifying factors involved in this so-called slump in the phenolic molding compound industry.

In the first place, the strike at the Durez plant, one of the major producers, accounts for a large part of the decline in the May and June figures. Other companies report that they had no unusual slump during that period. There, was, however, a natural decline in mid-Summer due to shut-downs for vacation and the usual falling off of all-over Summer business.

Mid-Summer consumption in 1947 was higher than in mid-Summer of 1948 because there was a bigger backlog of orders, very few saturated market items, less time lost due to vacations, and because the industry was still attempting to make up for the production lost during the three month long Bakelite strike at the end of 1946.

The so-called saturation in certain markets, already mentioned, appears to be no great calamity to the compression molding industry—perhaps it is a blessing because the molders have fully awakened to the realization that they must find new applications; and the activity in tooling up for these new items is quite noticeable. Take radio cabinets, for example. Processors and producers alike insist that this market for compression molding is by no means permanently lost, but they do admit that they are making fewer cabinets than a year or two ago because the market has declined. Significantly, this vacancy in molding time is being ameliorated by an increase in orders for newly designed cabinets including plans for television sets, molded in wood-filled phenolic compounds.

Increasing evidence that wire recorders are becoming more popular, points toward still another market which looks good for large molded pieces.

Phenolic cabinets for these recorders are under construction. Following the trend towards faster molding and larger pieces in the phenolic industry, many new tools are being built to take advantage of improved manufacturing techniques. As a result, there is a cellar window frame which will be constructed of cotton flock filled phenolic. A wood flour filled switchboard panel larger than any ever before constructed is another big piece already beyond the planning board stage. One company is building dies for a wall type kitchen cabinet. This item will be molded from both wood flour filled phenolic and urea.

Molded dresser drawers, both in compression molded phenolic and phenolic treated wood, are other new large pieces that may soon blossom out into quantity production.

Among the tried and true phenolic parts, the iron handle market seems to be saturated, as does also the wiring device market, despite the increase in housing construction. In 1947, wiring devices were the most stable and standard production item in the entire plastics industry, and consumption never let down until late Spring in 1948.

Vacuum cleaner parts from phenolics have fallen off slightly in 1948. Phenolic refrigerator parts are also a little off but largely because the refrigerator market has slowed down. Here, again, processors deny that they have lost part of their market to thermoplastics and point out that the breaker strip in particular, which has often been pointed to as being taken over by thermoplastics, is still most generally in phenolic.

Washing machine agitators and telephones are still going strong in phenolic with no indication of a letdown, although butyrate has moved into the telephone base application in a big way.

With relation to the competition between thermosetting and thermoplastic parts, it has been reported that Telechron has switched over completely from compression molding compounds to injection molded polystyrene for clock cases. The various molders involved suffered no great hardship for they simply moved the job over from one line to another; but the significant factor is that the clock company may install an injection press in its owr plant. Not many end users attempt to do their own compression molding, but injection molding is a horse of another color, and custom molders are thinking up various counter moves to forestall such a trend that might take potential business out of their hands.

Another important angle in the phenolic molding powder situation is the announced plans of several companies to increase their production during the year 1948. Monsanto Chemical Co. is now believed capable of operating at double its war-time capacity, according to an announcement made last Spring; General Electric has entered the field with large production capacity; the Durite plant of the Chemical Div. of the Borden Co., has announced it will double production; and Bakelite and Durez increased their capacities considerably in 1947. Today's total capacity should therefore be well over the 20 million lb. record consumption of last March.

Other companies such as Reilly Tar and Chemical, Harwick-Standard Chemical, and Barrett Div. of Allied Chemical and Dye, have been mentioned as possible contributors of additional molding material to the field. The future for Interlake Chemical Co.'s Waltham, Mass., (formerly Makalot) plant has not yet been determined. The pre-war capacity of this plant was listed at around 15 million lb. a year.

The raw material supply situation for phenolics is no longer looked upon as critical unless demand should suddenly pyramid or in case an emergency should divert some of the raw materials to channels other than plastics. The formaldehyde and wood flour supply shortages seem to be over for the time being at least. Although phenol is tight, there should be enough available for any immediate demand in the phenol-formaldehyde field. The Dow strike, which cut off production of the largest producer's phenol supply, was a threatening gesture, but the general Summer slump in molding plants

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and floods in the Northwest which cut down plywood operations in which phenol is used in adhesive compounds reduced the demand.

The plastics industry is rapidly expanding its use of phenolic compounds to supplement the quantity already in use for molding powder and laminates. One of the most promising is a phenolic honeycomb with aluminum or plywood skin to be used for non-slamming doors. The light weight of the door will theoretically prevent the slam which is customary with heavier doors. The Navy is supposedly interested in a similar type product with metal skins to be used as fireproof doors.

Another growing field is phenolic impregnated wood to be used for table tops, sink tops, etc., in competition with melamine laminates.

A kindred item for which new tools are being built is a large combination radio-phonograph cabinet made of a post formed phenolic laminate which is formed in sections and assembled into the finished cabinet. The laminate is surfaced with impregnated paper in imitation wood grain.

Still another increasing use for phenolic compounds is with rubber to give a material with extremely high impact strength.

Oldest of the plastics, except for cellulose nitrate, and largest from a tonnage consumption figure, the phenolic branch of the plastics industry is in no sense content to rest upon its laurels; it expects to find ever-widening markets. Despite the fact that many experts predicted only a few years ago that phenolic would never go over 100 million lb. a year, total production last year of phenolic plastics was almost 320 million lb., exclusive of the resin used in surface coatings.

New alkyd molding compound

A NEW alkyd resin thermosetting molding powder produced by the Plaskon Div., Libbey-Owens-Ford Glass Co., Toledo, Ohio, is expected to be announced within a few weeks. It is said to be the first alkyd mineral-filled hot molding compound on the market. The filler is clay and asbestos, and the compound is particularly applicable for electrical purposes. It will be available only in limited color range.

The price of the new material is around 35¢ per pound. It cures so rapidly, however, that much time can be saved in processing. Those who have experimented with it declare that the material will cure in as little as 6 sec., and it is claimed to be three times as fast as other thermosetting materials. Neither does it require such high pressure as other thermosetting compounds, and it can be molded in less massive equipment at higher speed. The presses must be equipped to close very rapidly, for the compound sets so quickly that it might break molds.

This new alkyd compound has an arc resistance of 190 sec., which is claimed to be about 70 sec. better than most other organic plastics. It also has a high heat resistance at 385° F.

Styrene-butadiene compound enters molding field

A NEW plastic called Tuf-Lite was described by H. R. Thies, manager of the Chemical Div. of the Goodyear Tire and Rubber Co., Akron, Ohio, at a two day meeting of the American Chemical Society's Rubber Div. in Los Angeles recently.

"The older rubber technology thought of plasticizing rubber with a plasticizer that would not deteriorate the physical properties of the compound but would make it flow easily," Mr. Thies said. "This Tuf-Lite development is a definite approach in the other direction, wherein a light, hard, and perhaps somewhat brittle resin is plasticized with rubber which is subsequently cured. This plasticizer improves the physical property of the resin and imparts unique properties to the mixture."

Mr. Thies said that the raw materials for the new plastic are butadiene-styrene resins, Pliolite S-3 and S-6, plasticized with synthetic or natural rubber, and that the final product is at first soft and pliable, flowing readily. It molds cleanly with little trimming necessary and handles very easily as long as it is kept warm, he said. "The tough, high-impact resistance, low water absorption, good tensile strength, and excellent electrical properties of the Tuf-Lite mixtures indicate that they should have a wide scope of industrial uses. For example, football helmets are now being manufactured from them. Shoulder pads, thigh guards, golf club heads, bowling alley pins, bowling balls, and a number of other applications are under development," Mr. Thies declared.

This new material will be described in detail in the October MODERN PLASTICS.

Pliovic

AFTER a year in actual production of finished materials and completion of development work, the Chemical Div., Goodyear Tire & Rubber Co., Akron, Ohio, has announced that its new vinyl copolymer resin, called Pliovic, is now available to the plastics industry. H. R. Thies, manager of the Chemical Div., says that it is somewhat different from the usual type of vinyl copolymer resin in that it requires less plasticizer and is easier to process. He stated that it could also be used to produce organosols and films which heat seal at lower temperatures. Available in two grades, Pliovic A for general use, and Pliovic AO for organosols, it is planned that the resin will be the parent of a new family of vinyl chloride copolymers.

Low pressure meeting

EVIDENCE that the low pressure division of the plastics industry is looked upon as a future source of essential materiel by the Armed Forces was forcefully indicated at a recent meeting held in Washington, D. C., where members of the Low Pressure Div. of S.P.I. met with Government technicians in order to compare notes and discuss the type of laminates most desired in the various Services.

The technique and future possibilities of this new industry probably never were exposed to more public criticism and acclaim than at this gathering where the participants took advantage of the opportunity to throw questions back and forth at each other in lively panel sessions. All were in quest of solutions to a multitude of ever-changing technicalities in an industry based on temperamental resins which, as one speaker implied, may be ideal for a given application but worse than poison in the shop of a man who is inexperienced in handling them.

The interest of the Army, Navy, and Air Force in low pressure laminates is a portent of their future

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possibilities and a highly desirable tonic to a patient who has been subject to a jittery, nervous condition induced by low volume output. After a post-natal period in which low pressure laminates were falsely proclaimed as the miracle materials of the universe by over-enthusiastic boosters, the bottom dropped out of the market for a number of reasons which there is not room to mention here.

Lately, the low pressure laminates have been making a mild comeback, but the interest shown in them by the military folks has relighted the old fire and has stimulated research and experimentation to get rid of those inevitable bugs that infest every new chemical development.

A meeting such as that in Washington can't help but create a feeling that here is a real champion if he can just be harnessed and a bit put in his mouth long enough to get the critter under control. Furthermore, the joint meeting of user and manufacturer served as a means for checking up on the present state of the industry in civilian applications. It served to re-emphasize that cheap, makeshift molds are a hindrance rather than an aid to more universal acceptance of low pressure laminates; that the industry is approaching high pressure laminators' techniques but with processes more adaptable to curved and complex forms; that low pressure laminates frequently have higher impact strength and toughness but fall somewhat behind in other properties; that safe working temperatures for polyester and glass fiber molded products is 300° F., with possibilities up to 500° F. for 30 min. duration; that purchasers should be informed how much they are getting per dollar in certain properties such as light weight, strength, or dielectric qualities rather than in quantity; that a continuous laminate is still looked upon as the "bread and butter" operation which will eventually bring the industry to a high production level: that resin prices have dropped from $1.00 a lb. on a 1,000 lb. per day basis in 1942, to an average of 42¢ a lb. on the smaller quantity purchases now prevalent and that it might be wise to check this descent in order to support activities in resin improvement. When volume goes up due to improved resins, the processing price will automatically come down

Government technicians at the meeting emphasized their need for light weight laminates that will withstand extreme temperatures, humidity, fungus, and high impact, and will have top electrical qualities. Among the items most frequently mentioned were aircraft structural parts where metal cannot be considered due to dielectric properties; non-structural parts where rigidity with minimum weight is desired, such as hatches and doors; applications such as fuel cell supports and flak armor which take advantage of the gunfire resistance of low pressure Fiberglas and nylon laminates; ducts of complex contour; boats; piping for both shipboard and land use; panels that might be used for all sorts of purposes, including switch gear, housing, and body armor; protective helmets; sleds and skis. Most of these were discussed in some detail in the article, "What the Armed Forces Want in Plastics," page 75 of the August issue MODERN PLASTICS. One of the most surprising complaints offered by the Air Forces was that rain erosion caused pock marks on radomes and leading edges on tails.

Interest in reinforcing materials centered largely on fibrous glass of one type or another, but the panel session on fillers brought out a new list of possibilities such as preformed fillers in the shape of threads or strands sucked through a porous mold to form a mat in a shape and thickness ready for resin application; nylon fabric for electrical panels and flak armor; perforated papers which would eliminate entrapment of air between plies; surface treated glass fibers by heat cleaning, chemical treatment or desizing, chemical treatment of cotton, and urea treatment of paper, all of which would help wetting individual fibers; glass paper—a combination of glass and paper; cotton mats which eliminate weaving and synchrolated cotton fabric to allow a 30% stretch for deep drawing.

The panel on molds and equipment furnished ammunition for what was probably the hottest session of the meeting and, as hinted at before, indicated a definite trend toward the adoption of more costly equipment. There was a lively disagreement over the advantages of cast versus sheet aluminum molds with several speakers asserting that cast aluminum offered better surface finish. Another type mold made by electrolytically depositing nickel on a plaster mold and then knocking out the plaster received considerable attention, and the principal speaker at the session called attention to a new process consisting of a chrome plated copper sheet formed to contour and backed with a cast aluminum section containing heating coils.

A significant trend was emphasized by the large attendance from the Pacific Coast where the low pressure industry seems to have established a foothold. Many of those present at the meeting were convinced that the West Coast aircraft plants will get over 90% of the business developed from the new air defense program, and that it is in these airplane plants where low pressure processing may reach its zenith; the product is particularly suited for aircraft use, and airplane manufacturers have the capital to invest in its exploitation. A long range view is that these same aircraft companies will be building another assembly line which they can convert to the manufacture of civilian items when production of airplanes falls off. It also seems evident that other Western laminators, exclusive of the aircraft people are as a rule more explorative and more adventurous in this new field. The reason was aptly stated by one Western observer who said: "Out here our business is comparatively small as measured by the big Eastern corporations, and we can afford to experiment with the construction of one casting—in the East hardly anyone would touch an order for less than 50 castings."

Crystal-clear plastic

TENITE II, cellulose acetate butyrate produced by Tennessee Eastman Corp., Kingsport, Tenn., is now available in a new crystal-clear transparent form made possible through use of a new process which has also produced paler, more delicate tints, of transparent colors of Tenite II, according to a recent company announcement.

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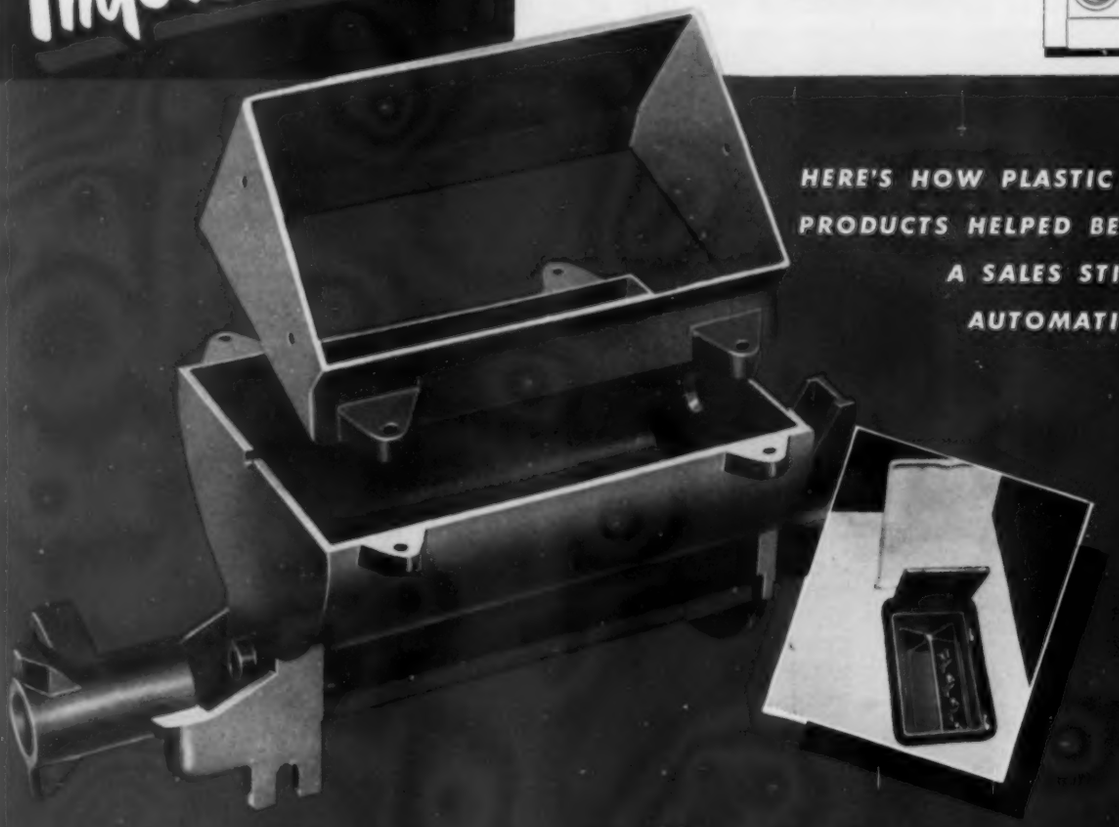

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ing Materials has elected the following officers for terms of two years: Chairman, G. M. Kline of the National Bureau of Standards and technical editor of MODERN PLASTICS; first vice-chairman, L. W. A. Meyer, Tennessee-Eastman Corp.; second vice-chairman, R. K. Witt, Johns Hopkins Univ.; secretary, B. L. Lewis, Tinius Olsen Testing Machine Co.

Follow-up

AN interesting follow-up to The Dow Chemical Co.'s "Consumer and Buyer Evaluation Program" is the national store-wide promotion by the S. S. Kresge Co. stores of Styron products, scheduled for a week during mid-September.

Pioneers

IN our preview of the recent election of the Pioneers of the S.P.I., we listed N. A. Backscheider as associated with Kirk Molding Co. Mr. Backscheider is, of course, president and general manager of Recto Molded Products, Inc., Cincinnati, Ohio, and we hasten to correct the error.

Acrylic price change error

IN last month's item discussing increased prices for acrylic sheets, rods, and tubes by Rohm and Haas Co., and E. I. du Pont de Nemours & Co., Inc., it was erroneously reported on page 176 that the latter company had reduced prices. We got our words mixed up. Actually, it should have been stated that Du Pont, like Rohm and Haas, had *increased* rather than reduced prices on acrylic sheet and rods.

Demand for presses

THERE will be a growing demand for production machinery, particularly in the plastics industry, for the next several years, declared Edwin A. Stillman, president of The Watson-Stillman Co., in a talk given on the occasion of his company's 100th Anniversary.

Plastics molding machinery sales, according to Mr. Stillman, suffered a temporary recession immediately post-war because of frequent misapplication of materials and over-optimism and lack of experience among small molders. This situation is, he believes, on the basis of current sales, rapidly being resolved into a long-term increasing demand by custom and proprietary molders for large-capacity equipment which will cut manufacturing costs and increase unit output.

The Watson-Stillman plant in Roselle, N. J., now employs about 800 workers, drawn chiefly from Elizabeth, N. J., and the Roselle area.

RAW MATERIALS

Vinylum #45—A blend of ultra fine polished aluminum powder and a special vinyl copolymer, specifically designed for coloring vinyl compounds with aluminum to produce metallic and iridescent effects, has been announced by the Argus Chemical Laboratory, Inc., 56 Clifton Place, Brooklyn 5, N. Y. The producer asserts that Vinylum #45 can be dispersed in vinyl compounds in ¼ the time required for aluminum powders and that although it contains only 45% by weight of aluminum, its hiding power and metallic luster is higher than conventional powders. Uniform concentration in the compound is readily obtained, thus eliminating the color intensity differences commonly resulting from cut and feed marks.

Plastolein 9715 has been introduced by Emery Industries, Inc., Cincinnati, Ohio, as an entirely new resinous plasticizer especially suitable for the vinyls where low volatility and low oil extraction is important. The product has also been found to be particularly effective in polyvinyl acetate formulations, according to company officials. New operating units have been added to the company's plasticizer plant, and production facilities enlarged to handle Emery Industries' complete line of Plastolein plasticizers.

COMPANY NEWS

Commonwealth Plastics Corp., Leominster, Mass., has elected Harry Levine as chairman of the board, with Edwin S. Lowe, secretary, and Louis Levine, treasurer. Entering its 25th year, Commonwealth plans to introduce a new line of branded merchandise in the toy and housewares fields, as well as engage in the production of display merchandise.

American Resinous Chemicals Corp., 103 Foster St., Peabody, Mass., is manufacturing a complete line of vinyl printing inks, including clear vehicles, thinners, light-fast non-cracking pigment concentrates, deluster coats, and dye solutions. All are available for various methods of application, including rotogravure and silk screen printing, as well as hand topping, or spanishing on film or vinyl coated fabric.

The Swedish Plastics Federation (Svenska Konsthartsforeningen) has moved from Vastra Tradgardsgatan 19 A to Karlavagen 43 II, Stockholm. Cable address remains the same.

Northwestern Plastics, Inc., 2535 W. Washington St., Chicago, Ill., has been bought out by the Braun Manufacturing Co., 1635 N. Kostner Ave., Chicago, manufacturers of hinges, supplying the radio, automotive, and other fields, and will operate as a division of this company. W. T. Roose, formerly an executive of Northwestern Plastics, remains with the firm as general manager. The company, which engages in compression and transfer molding, has several proprietary items and also handles custom molding work.

The Goodyear Tire and Rubber Co., Akron, Ohio, has established a Chemical Div. to handle its expanding manufacture and sales of synthetic rubber and its combination with other raw chemicals. The new division was created from the Plastics and Coatings Dept. of the former Chemical Products Div., now known as the General Products Div. The latter, headed by C. P. Joslyn, will embrace Pliofilm, Airfoam, Builders' Supplies and Flooring, and Plastics departments. The new Chemical Div. will handle all chemical raw material sales, with Herman R. Thies, previously manager of the Plastics and Coatings, Dept., in charge. W. H. Aiken will be assistant division manager. Robert E. Workman, chemical engineer for Goodyear Tire and Rubber, has been named a special representative of the Chemical Div., and will be stationed at St. Louis.

Firestone Plastics Co. has moved its entire staff, including sales, to

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the Firestone plant at Pottstown, Ohio, where development and production departments have been located, according to Roger S. Firestone, president of the Plastics Co.

Victory Manufacturing Co., Chicago 12, Ill., has expanded its plant to include the entire building at 1722-40 West Arcade Place, giving a total of 61,000 sq. ft. of space and allowing improvements in plant layout. The company manufactures injection molded parts.

Plax Corp., Hartford, Conn., has established regional sales offices at 415 Lexington Ave., New York, N. Y., and in the Commercial Trust Bldg., Philadelphia, Pa.

Hutzler Manufacturing Co. has moved to new and larger quarters at 45-26 21st St., Long Island City, N. Y.

Bakelite Corp., unit of Union Carbide and Carbon Corp., has appointed John D. Benedito as manager of the newly created Extrusion and Molding Materials Div., Thermoplastics Dept. Mr. Benedito has been sales manager of Canadian Resins and Chemicals, Ltd. for the past 6 years.

A. F. Sward, who has been manager of the Calendering and Molding Materials Div., has been named manager of the Calendering Materials Div., Thermoplastics Dept. Sales activities of the Thermoplastics Dept. were split up into these two divisions because of increased sales volume for both Bakelite polyethylene and Vinylite resins and plastics for molding, calendering, and extrusion compounds.

R. J. Southwell, formerly technical representative in Detroit, Mich., for Bakelite Corp., has been appointed sales manager of Canadian Resins and Chemicals, Ltd.

Technical Specialties Co. has moved its laboratory and plant to Wilmington, Del., where it has increased facilities for the production and development of Pearl Essence and its adhesive, Dekadhese. T. L. Hines, former general manager of the Cellophane Div. of E. I. du Pont de Nemours & Co., Inc., has assumed his duties as president and general manager of Technical Specialties. Dr. William E. Decker remains as technical director.

Omni Products Corp., 460 Fourth Ave., New York 16, N. Y., will soon place on the foreign market its own brand of vinyl molding and calendering compounds. Among this company's promotion activities is a house organ entitled "Omni Plastics News" mailed to foreign customers and devoted almost exclusively to semi-technical information on plastics products and machinery that may be obtained in the United States.

The Formica Insulation Co., Cincinnati, Ohio, has changed its corporate name to The Formica Co., because its expanded production now serves more diversified fields. The company originally manufactured laminated materials primarily for the electrical insulation field.

Kiemac Manufacturing Co., Inc., 33-56 54th St., Woodside, L. I., N. Y., manufacturers of hobs, cavities, dies, and complete molds for plastics, has announced personnel additions of Adolph Angerstein, formerly of Tech-Art Plastics Co., and Terry Liaros, formerly with Boudoir Accessories Co., Inc.

Modern Tool Works, Ltd., 69 Montcalm Ave., Toronto, Ont., Can., has recently been appointed Canadian distributor for Defiance Machine Works, Inc., Defiance, Ohio. Defiance Machine Works is showing its new Tri-Dyne Molding Press for the first time at the National Plastics Exposition in New York City in September.

Monsanto Chemical Co.'s New York offices, 445 Park Ave., have received their final touching up after a year of occupancy, and for spaciousness, taste, and decorative effect, vie with any other division sales offices of any chemical company in the United States. The company's quarters occupy three floors in the new 21-story Universal Pictures Bldg., and particular care has been taken to see that plastics were employed wherever possible. Applications include vinyl plastic wall and floor coverings, furniture upholstery, and drapes; melamine-surfaced furniture; polystyrene light diffusing panels; phenolic molded correspondence boxes; plastic coated wallpaper; and plywood molded furniture employing Monsanto resin binders and adhesives. C. F. Reeves is manager of the Plastics Div. of the New York sales office.

Shell Chemical Co. has moved its executive offices from San Francisco, Calif., to 4 W. 58th St., New York, N. Y.

E. I. du Pont de Nemours & Co., Inc., has announced the retirement of William A. Joslyn, director of industrial sales in the Plastics Dept., after 45 years with the company. During Mr. Joslyn's service with Du Pont, the firm's line of plastic products was increased from one to nine.

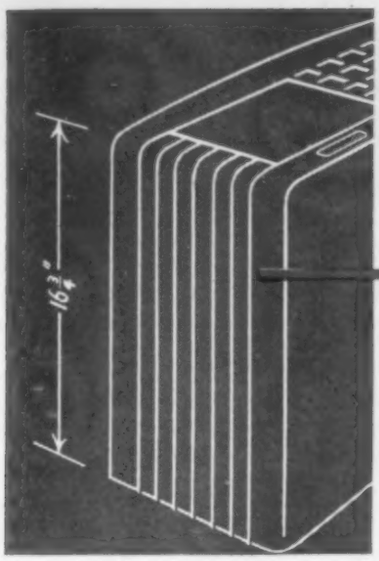
Succeeding Mr. Joslyn is Leslie B. Gillie, formerly assistant director of industrial sales, Plastics Dept., who has been with the company 33 years. Edward J. Pechin, formerly manager of plastics advertising, and P. Willard Crane, formerly technical sales manager, have been promoted to assistant sales directors; and Frederick H. Endorf, who was production superintendent at the Arlington Works, has been appointed to the newly-created position of assistant to the director of production, William R. Diver.

PERSONAL NEWS

W. H. Face has been named sales manager of Swedlow Plastics Co., 3757 Wilshire Blvd., Los Angeles 5, Calif. Mr. Face entered the plastics industry with the Fiberloid Corp. in 1933, and, upon that company's purchase by Monsanto Chemical Co., joined them and later became branch manager in St. Louis in charge of Midwest plastics sales.

Mr. Face's Army service includes that of Chief of the Chemicals and Plastics Unit of the Materiels Distribution Branch of the Resources Control Section, Air Technical Service Command at Wright Field. After his separation from the Service, he returned to Monsanto and became assistant sales manager for thermoplastic molding compounds until May 1 of this year when he joined Swedlow.

Barrett C. Dillow has been named sales promotion manager of the Sloane-Blabon Corp., 295 Fifth Ave., New York, N. Y. He joined the firm



a deep draw

turns up a winning number!

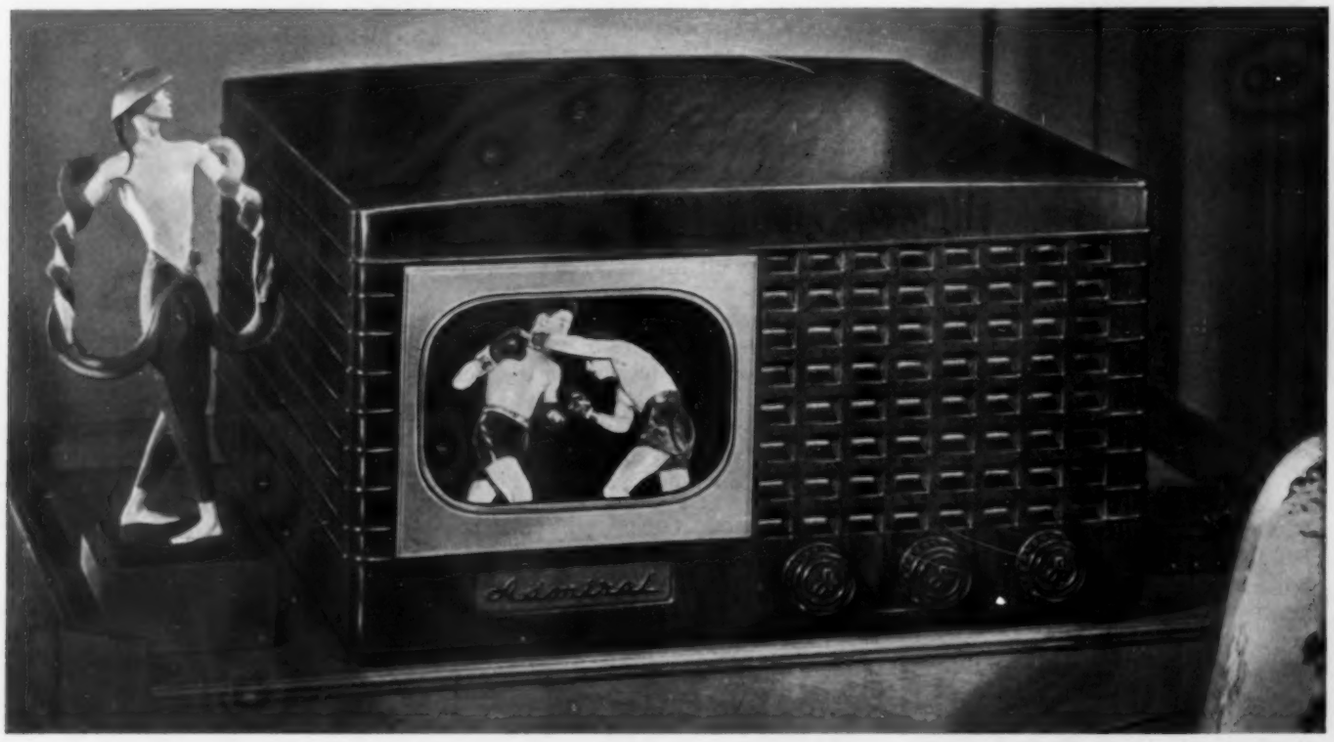
Admiral SCOOPS TELEVISION FIELD

WITH FIRST PLASTIC CABINET . . . *molded by* MPc

Admiral ... with an able assist from **MPc** . . . has done it again! Here is the first table model television set in a cabinet that combines the beauty and economy of plastics.

Translating Admiral's market-wise vision into a marketable reality called for a high degree of engineering and production sagacity. The grill front, top, bottom and sides of this cabinet are formed in a single mold . . . with a draw of 16¾ inches! Dimensional stability and the sleek, all-around finish are maintained under heavy production schedules.

MPc welcomes the challenge of tooling and producing pacemakers like this cabinet. Submit your plastics product or problem to MOLDED PRODUCTS CORPORATION, 4535 W. Harrison St., Chicago 24, Illinois.



PLASTICS DIVISION

MOLDED MPc PRODUCTS

CORPORATION

COMPRESSION, INJECTION AND TRANSFER MOLDING

THE PLASTISCOPE

in January, 1946, as assistant to the president, and at the beginning of this year was made assistant sales manager.

Donald C. Chase has been appointed manager of rubber and plastics machinery sales of Farrel-Birmingham Co., Inc., Ansonia, Conn.

George H. Clark, vice-president in charge of engineering of Formica Co., Cincinnati, Ohio, and president of The Society of the Plastics Industry, has returned from a business trip to Great Britain, which included a goodwill mission on behalf of the Third National Plastics Exposition. While there, Mr. Clark spoke before a group of members of the British Plastics Federation and conferred with a substantial list of other foreign representatives who plan to make the trip to New York for the Exposition.

William A. Joslyn, retiring director of industrial sales in the Plastics Dept., of E. I. du Pont de Nemours & Co., Inc., was reminded of the esteem in which he is held by the industry when a group of chemical company officials tendered him a dinner to help express their appreciation of their long and pleasant association together. The list of guests read like a Blue Book of men who have been in the forefront of the thermoplastics industry since the heyday of cellulose nitrate. They included F. A. Abbiati, C. F. Reeves, and John H. Clark (retired) of Monsanto Chemical Co.; Morris Breitkopf and Mark Peters of Nixon Nitration Works; W. S. Landes and E. W. Ward of Celanese Plastics Corp.; John Johnston (retired) of Du Pont. Mr. Joslyn was presented with a silver cigarette box by the guests.

J. K. Boosahda has resigned from Northern Industrial Chemical Co., South Boston, Mass., to accept a position with Omni Products Corp., 460 Fourth Ave., New York 16, N. Y., for whom he will make a study of the foreign market.

Dr. F. C. Peterson has been promoted to production manager of the Cellulose Products Div., The Dow Chemical Co., Midland, Mich., replacing Dr. W R. Collings, vice-president and general manager of Dow Corning Corp., Midland.

Dr. Gerald J. Leuck has been promoted to technical director from director of research of Glyco Products Co., Inc., with headquarters in Natrium, W. Va. The program for this new laboratory at Natrium will include high pressure alkylations, vinylations, and other organic syntheses.

C. E. Coombs, formerly associated with the Barber Asphalt Co. and the Cellophane Research section of E. I. du Pont de Nemours & Co., Inc., has joined the Morart Gravure Corp., Holyoke, Mass., as chemist in charge of the laboratory. Mr. Coombs has done considerable work on cellulose derivatives, particle size distribution, and viscosity and will have charge of development and experimental work as well as quality control in the company's extensive development program on printed vinyl films and printed designs for the thermosetting decorative laminate field.

Fernley H. Banbury of Farrel-Birmingham Co., Inc., Ansonia, Conn., was recently awarded an honorary doctor of engineering degree by Purdue University in recognition of his invention of the Banbury mixer.

The first model of this machine, now used universally in the rubber industry and for processing plastics, linoleum, paints, etc., was produced in 1916, and 24 additional patents have since been obtained by Mr. Banbury on improvements to the machine.

Retired since 1943, Mr. Banbury still serves on the company's board of directors.

Roy Cummings, formerly chief quality engineer of the Curtis Wright Corp., has joined Mayflower Electronic Devices, Inc., a division of Mayflower Machine and Tool Co., 6014 Hudson Blvd., West New York, N. J.

Raymond B. Seymour has joined the firm of Johnson and Johnson, New Brunswick, N. J., as director of its special products research division. Dr. Seymour recently resigned his position with the Industrial Research Inst. of the University of Chattanooga. He has considerable experience in plastics and textile research with Monsanto Chemical Co., Atlas Mineral Products Co., and Goodyear Tire and Rubber Co.

Charles E. Van Hagan of Madison, Wis., is the new secretary-treasurer of the Forest Products Research Society in Madison, succeeding Thomas R. C. Wilson, who plans to resume his practice as a consulting timber engineer. Van Hagan has been a technical writer and reviewer for the past four years with the U. S. Forest Products Laboratory.

Harold F. Smiddy has been named general manager of the Chemical Dept. of General Electric Co., with headquarters in Pittsfield, Mass.

George P. Lehmann, formerly manager of the Plastics Div., General Electric Co., has been named to the personal staff of Dr. Zay Jeffries, vice-president of the company. Robert L. Gibson succeeds Mr. Lehmann.

William T. Hack, New York chemical engineer and former Government official, has been appointed director of the newly-created division of chemicals, rubber, and allied products of the National Security Resources Board, Washington, D. C.

Deceased

Maurice L. Macht, research chemist with E. I. du Pont de Nemours & Co., Inc. Mr. Macht held 18 patents in the thermoplastics field.

MEETINGS

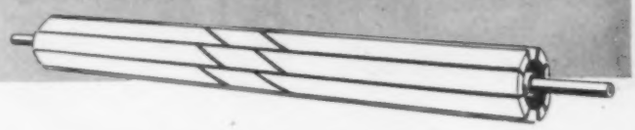
114th National Meeting of the American Chemical Society is being held in three sessions: Washington, D. C., Aug. 30-Sept. 3; St. Louis, Mo., Sept. 6-10; Portland, Ore., Sept. 13-17.

Sept. 27-Oct. 1—Third National Plastics Exposition, Grand Central Palace, New York, N. Y.

Oct. 5-7—New England Materials Handling Exposition, Mechanics Hall, Boston, Mass. This is the first regional materials handling event of its kind.

Oct. 12-16—Fifth National Chemical Exposition, sponsored by the Chicago Section of the American Chemical Society, Chicago Coliseum, Chicago, Ill.

PREVENT WRINKLING
of plastic films and fabrics



Van Vlaanderen Expanders enable you to run synthetic fabrics, sheets and films on processing machines at top speeds without wrinkling. These expanders are available in types to fit almost all kinds of calenders, tenters, coaters and tubers at both take up and let-off end of rolls. They facilitate processing operations, save winding costs and produce tighter, smoother finished rolls.

You can get V. V. Expanders in all standard widths. Write now for free descriptive Bulletin EP-8. Address your request to the Van Vlaanderen Machine Company, 370 Straight Street, Paterson, New Jersey

Van Vlaanderen
MACHINE COMPANY

Special types have been developed for each plastic

Pearl Essence

MEARLMAID PEARL ESSENCE

THE
MEARL
CORPORATION
153 Waverly Place New York, N.Y.

Deliver Better Plastics

Watertown's complete laboratory means that your custom-molding job will be right from start to finish. Plastic pieces like these are used in developing the right compound . . . to determine tensile strength. Then, after every operation, we test the work itself. We X-ray, push, pull, twist, pound and bake it, analyze its electrical, physical, chemical and mechanical properties . . . until you, and we, know it's right.

It pays to draw on Watertown's more than 33 years experience in plastics. We'll welcome your inquiry.

Compression - Injection - Transfer Molding

THE WATERTOWN MANUFACTURING COMPANY
1000 ECHO LAKE ROAD, WATERTOWN, CONNECTICUT

Watertown
A NAME AS OLD AS THE PLASTICS INDUSTRY

Don't stick your neck out . . .

Putting a new product on the market is more than just saying, "Make it of plastic—it'll sell." Careful attention must be given to the engineering of the dies for production, design of the parts to assure close fits and perfect function, selection of material for wear and use, and choice of color and styling for sales appeal. Get the BEST advice on custom molding. Call on Pyro.

Pyro PLASTICS CORPORATION

691 CHESTNUT STREET AT ROUTE 29
UNION, UNION COUNTY, NEW JERSEY

Made in HARVEY Molds!

TOP AWARD WINNER, 7th MODERN PLASTICS COMPETITION

Winner in the Toys and Games Group of the 7th Modern Plastics Competition is the Little Homemaker Doll House entered by the Plastic Art Toy Corporation of America, East Rutherford, N. J. It features miniature plastic reproductions of fine modern and period furniture . . . each a faithful facsimile of its original in both proportions and details.

The molds for these furniture pieces—like the dining room units illustrated—had to be accurate and long-lasting. That's why Columbia Protektosite Corporation, the molder, called on Harvey for many of the molds required.

Harvey molds are known throughout the plastics industry for close-tolerance tooling and long life. They're chrome burnished. They're made from hardened stainless steel. They're carefully pre-tested before delivery. In short, they're the right molds to use for prize-winning, sales-winning plastic products.

GUY P. HARVEY & SON CORP.

AUTOMATIC PLASTIC MOLDS
LEOMINSTER, MASSACHUSETTS

PAULITE the plastic that's BRIGHT at NIGHT

For the premier in luminescent plastics

use

PAULITE PHOSPHORESCENT POLYSTYRENE

PAULITE PHOSPHORESCENT POLYETHYLENE

PAULITE PHOSPHORESCENT TENITE II*

also

PAULITE FLUORESCENT POLYSTYRENE

(for use with black light)

LONG LASTING LUMINESCENCE

Articles made of PAULITE emit a warm, friendly glow in the darkness. This after-glow lasts for as many as 10 or more hours, depending upon the intensity of activation.

EASY TO USE

Luminescent PAULITE comes in ⅛" to ¼" granules — ready for immediate molding. You handle PAULITE just as you would any other thermoplastic molding compound — it requires no special treatment before, during or after molding. All ingredients are thoroughly sealed, finished pieces have a glossy surface.

For complete information about the various varieties of PAULITE and how they can increase the saleability of your products, fill in and mail the attached coupon at once.

*Reg. U.S. Pat. Off.

THE PREMIERE IN LUMINESCENT PLASTICS
PAULITE
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Luminescent
PLASTICS CORPORATION
201 N. WELLS STREET CHICAGO 1, ILL.

MAIL THIS COUPON FOR FULL DETAILS

LUMINESCENT PLASTICS CORP.
201 N. Wells Street
Chicago 1, Ill.

Gentlemen:

We're interested in PAULITE, the plastic that really glows in the dark, for molding the following items.....

.....

Please send us detailed information on PAULITE'S physical properties and colors. Include data on prices and delivery dates.

Name.....

Firm.....

Address.....

Industrial Plastics Co.

A Division of
INDUSTRIAL ABRASIVES INC.

Announces

A NEW ENGINEERING SERVICE
DESIGNED TO SAVE YOU
MONEY AND TROUBLE . . .

designs that reduce mold cost and production time

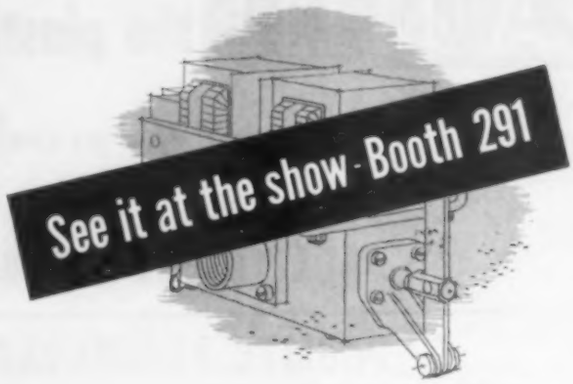
the Industrial Plastics Co. is geared to save you time and money through better engineering and modern methods. We approach each design with a thorough knowledge of the problem. You get *extra* attention and *extra* service! From the first time we see your product to the last detail in the design of its plastic parts, every step is carefully mapped out and controlled in our efficient factory. Call us in . . . compare our methods with your present methods. Compare cost, too!

INDUSTRIAL PLASTICS CO. *serves the Greatest Names in Industry!*

GENERAL MOTORS · BENDIX · STUDEBAKER CORP.
BELMONT RADIO · DORMEYER CORP. · NOBLITT-SPARKS
and many others

INDUSTRIAL PLASTICS CO.
3724 West 38th Street • Chicago 32, Illinois

WIRE · PHONE · WRITE . . . for conference



Valve Designed Specifically For Water Accumulator Actuated Plastic Presses

★ Good News! Saval, Inc., famous for aircraft quality controls, now brings you a control valve designed specifically for the high pressure water systems used by the rubber and plastics industries.

DUAL PRESSURE
SOLENOID ACTUATED
4-WAY SELECTOR
7,000 PSI
WATER OR OIL

See the "Shear-Seal" valve at Booth No. 291 at the SPI show. Learn why it's better in 7 different ways:

(1) Designed specifically for high pressure water service.
(2) Passes pipe scale in normal operation.
(3) Rugged, heavy-duty construction.
(4) Fast, positive action under all conditions.
(5) Intimate, metal-to-metal contact of sealing members.
(6) Compact, flexible, easy to install.
(7) Leak-proof, trouble-free.

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SAVAL, INC., 1915 EAST 51ST ST., LOS ANGELES 11, CALIF.

Offices: Los Angeles, Wichita, New York.
Local Sales Representatives in Principal Cities.

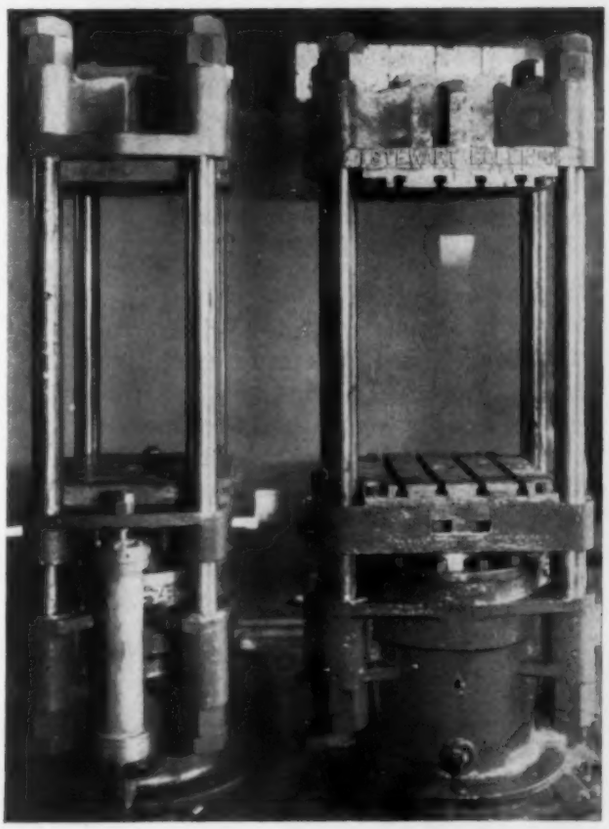
ELECTRICAL APPLIANCE *Award Winner*

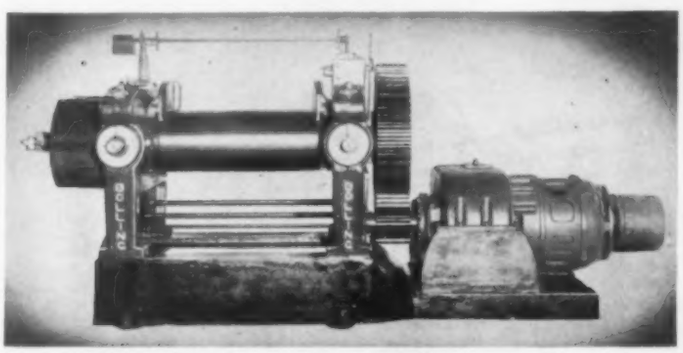
molded on STEWART BOLLING PRESSES

Max Weber Company's Roto-Beam Fan . . . an outstanding example of compression molded plastics in design, application and function . . . wins the coveted Electrical Appliance **Award in the Seventh Modern Plastics Competition.**

The plastics parts in the prize winning Roto-Beam Fan were processed and molded by Hauser Products Company, Chicago, on STEWART BOLLING standard hydraulic compression molding presses.

STEWART BOLLING provides Hauser Products and many other plastic molding plants with sturdy, well built and economical hydraulic compression presses. Available with platen surfaces from 12″ x 12″ up and in capacities to 2000 tons, STEWART BOLLING presses are produced in a complete range of sizes and pressures to accommodate all phases of compression molding of plastics. Types include 4-bolt, slab side, semi-ring, and full ring models.





STEWART BOLLING PACEMAKER MILLS . . . used widely in the plastics industry . . . are completely self contained, have 16″ x 42″ rolls, water cooled journal boxes, oil seals on bearings, forced feed lubrication, mill and drive mounted on single piece heavy cast iron base, 60 h.p. gearhead motors and enclosed disc-brakes. Other mills in sizes ranging from small laboratory models to 84 inch units.

STEWART BOLLING & COMPANY INC.

3190 East 65th Street • Cleveland 4, Ohio

CALENDERS • REFINERS • CRACKERS • MIXERS • VULCANIZERS • HYDRAULIC PRESSES (ALL TYPES)
PUMPING UNITS • ACCUMULATORS FOR THE PLASTICS AND RUBBER INDUSTRIES • BALE CUTTERS

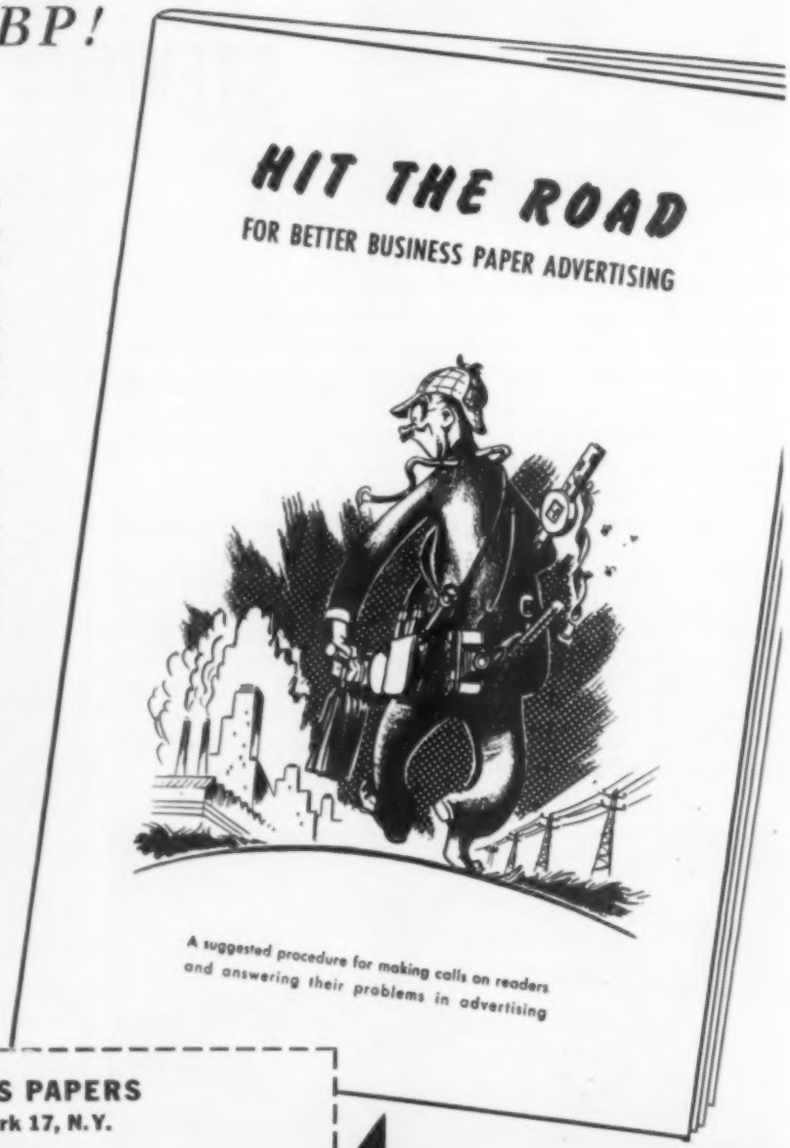
This book can help you do a better advertising job

and it's yours for the asking
... compliments of ABP!

If you're an advertiser, ad manager, or sales executive — this book is for you. Would you like to know how to take the guess-work out of business paper advertising? How to make *sure* your campaigns are slanted right? How to make your ads pay off in tangible results — and more of them?

This book tells you how. With pictures, case-histories, and a gleam in its eye, it deflates all the stuffed-shirt talk about copy research, and gives you the practical working technique that has enabled hundreds of advertisers to improve their returns—some by as much as 300%.

More than 10,000 ad-men have already profited by reading "Hit The Road." A few copies are still available, but they're going fast. The coupon, or a note on your letterhead, will bring your copy by return mail. There's no obligation, of course — except maybe to yourself.



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TELEGRAM

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PLASTIC MOLD TOOL & DIE COMPANY
EAST RUTHERFORD, NEW JERSEY

JUNE 9, 1948

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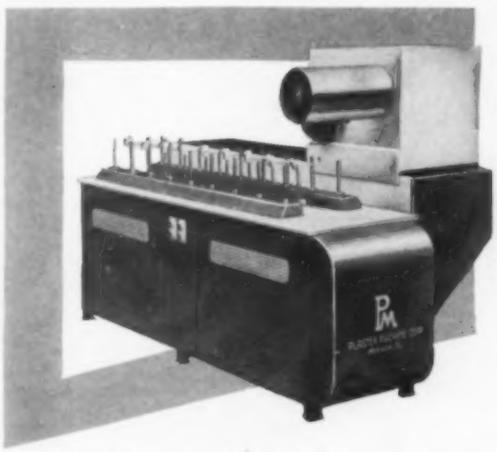
MODERN PLASTICS

PLASTIC MOLD TOOL & DIE COMPANY
Moldmakers To Award Winners
East Rutherford, New Jersey

Plastex Continuous Spooler for Monofilaments



Direct Extrusion Take-up

for Monofilaments **for Flat Strips**

Reeling and spooling of monofilaments, belting and other continuous, flexible plastic extrusions becomes rapid and simple when you use a Plastex Take-Up Unit. The design of these machines eliminates intermediate winding on special reels, thereby speeding production.

1. The Plastex Continuous Spooler for monofilaments has variable tension and take-up, which works through a special clutch mechanism that permits even, level winding and largely eliminates breakage and distortion. The Continuous Spooler can be furnished with an orienting unit.

2. The Plastex "Coil On" Unit reels flat plastic extrusions of any thickness and in widths to 4". It makes flat, easy-to-handle pancake shape rolls. A standby reel allows operations at sustained extrusion speeds while spools are changed.

These foolproof Plastex Take-Up Units operate in a direct line from your extruder. Once installed, they can easily be adjusted for spooling almost any continuous plastic extrusion.

Write today for complete information.

Plastex "Coil On" Unit for Flat Extrusions

PLASTEX MACHINE CORP.

Manufacturers of Plastics Processing Equipment
Paterson 27, New Jersey

All classified advertising payable in advance of publication. Minimum, $5.00 (up to 60 words); in border, $10.00 per inch

Classified Advertisements

For further information address Classified Advertising Dept. MODERN PLASTICS 122 East 42nd St., New York 17, N. Y.

SAVE WITH GUARANTEED REBUILT EQUIPMENT: Hydraulic Presses 30"x30" 24" ram, 700 tons, 30"x30" 20" ram, 1000 tons, 30"x30" 20" ram, 393 tons, 20"x24" 19" ram, 350 tons, 36"x36" 19" ram, 425 tons, 24"x24" 18" ram, 382 tons, 30"x30" 17" ram, 340 tons, 42"x42" 16" ram, 250 tons, 36"x52" 14" ram, 385 tons, 36"x36" 12" ram, 141 tons, 24"x26" 10" ram, 118 tons, 20"x20" 10" ram, 118 tons, 19"x24" 10" ram, 78 tons, 23"x17" 8" ram, 75 tons, 22"x15" 8" ram, 75 tons, 15"x15" 8" ram, 75 tons, 12"x12" 7½" ram, 50 tons, 12"x12" 6½" ram, 42 tons, 8"x9½" 4½" ram, 20 tons, 16"x16" 3½" ram, 12 tons; Pumps Robertson Duplex 1-2/3 gal. 4000#, Worthington Triplex 12 gal. 2200#, Watson Stillman Duplex box 1 gal. 2500#, 4 plunger 6 gal. 2000#; Laboratory Presses, all sizes; New Laboratory 6"x12" M.D. Mills; Extruders, Plastic NRM 1½" and 2½" Units; Preform Machines, Stokes R, Colton 5 and 5½ T; Mills, Mixers, Accumulators, Vulcanizers, etc. NEW DUAL PUMPING UNITS ALL SIZES. Highest prices paid for your used machinery. UNIVERSAL HYDRAULIC MACHINERY COMPANY, 285 Hudson Street, New York City 13.

FOR SALE Hydro Pneumatic Accumulator, 13 Gal. 3500#. Ball & Jewell Rotary Cutter. Model R and "T" Stokes Tablet Machines. 50 Ton Press with 18" x 18" Electric Plates. 100 ton 20" x 20" press. Racine Pumps, Boosters, Valves, Logan Pumps, Valves. Self-Contained—200 H.P. 78 Gal. 3000# Pump. 200 H.P. 200 Gal. 1500# Pump 18" x 15', Accumulator 1500#.—15" x 11' Acc. 400-2000". 6" x 9' Accumulator-2000#. 300 Ton Press 20" Ram, 8" Stroke, 24" x 20" Platen. 500 Ton—1000 Ton Hobbing Press—Hele Shaw Variable Pressure 33 GPM 2500#—Vickers Oil Pumps 17 GPM 500 to 1000#. Elmes Horo. 4 Plunger 6—Gals. 5000#. Stillman 12" x 12" Laboratory Presses. Aaron Machinery Co., 45 Crosby St., NYC.

FOR SALE 1941 LAKE ERIE ENGINEERING vertical upstroke 220 ton capacity two ram self-contained hydraulic steam platen press. Dimensions 41 x 27" with 12" daylight. Press has had very little use. Phone or wire M. B. Palmer, Stecher-Traung Lithograph Corp., Rochester, New York.

FOR SALE—1—Watson Stillman Hydro-Pneumatic High and Low Pressure System, complete, 3000#; 12—Baker Perkins 100 gallon Plastic Mixers; 1—12" x 12" Press 7" Ram, Steel Heated Platens and Hand Pump attached; 2—24" x 24" Adamson, 10" ram, 2—opening Hydraulic Press; 2—La Pointe Hydraulic Pumps, 150 G.P.M.—2000 lb. pressure direct motor driven to 125 HP AC motors; 1—French Oil Hydropneumatic Accumulator; 1—14" x 24" Press, 9" ram; 2—Royale #3 Perfected Tubers; 1—Royale #½ Perfected Tuber; 1—16" x 42" Thropp Mill; 2—B & J #1 Rotary Cutters; 1—Cavagnaro 2 cylinder 10" diameter Vertical Hydraulic Extruder; 1—Devine #11 Vacuum Shelf Dryer, 17 shelves heated 40" x 42"; 1—Farrell 6" x 12" 2-roll Rubber Mill; 1—48" x 48" 3—opening Hydraulic Press, 4—10" diameter rams, 300 tons; Dry Powder Mixers; Pulverizers; Grinders; etc. Send for complete list. Box C581, Modern Plastics.

EXTRUDER—IMMEDIATE SALE

National Rubber Machine Co.—1½" diameter screw. Complete with motor-generator and oil heating unit. Cross head attachment. Brand new, never used. Box C712, Modern Plastics.

FOR SALE—Thropp two roll 10" x 24" Mill, 10" x 15" Mill, 10 h.p. gas fired Steam Boiler and Pump, four Steam Tables, four presses, all fully equipped with motors, all in first class condition. Reply Box C718, Modern Plastics.

FOR SALE — 3—#0 Simpson Intensive Mixers, 5 HP; 25—Stokes Preform Presses DD2, 23 punch, 1-3/16"; 4—B and BB Rotary; 6—Model F; DD2, 31 punch, 15/16"; 4—RD4 Rotary, 1"; Colton Rotary, 35 punch, ¾"; 2—#3 Rotary; 4—3DT Single; Baker-Perkins, Day, Readco, from 4 to 150 gal. Double Arm Mixers; 2—Ball & Jewell #0 and #1 Rotary Cutters; 1—Watson Stillman 225 ton, 30"x28" platen, 16" ram; 3—Southwark 225 ton, 31"x19" platens, 16" ram; 1—Burroughs 150 ton, 28"x15" platens, 2—9" rams; 2—Baldwin-Southwark 110 ton, 24"x18" platens, 11" ram; 3—Watson-Stillman 60 ton, 12"x12" platens, 8" ram; 1—12 ton, 15"x15" platens, 3½" ram; 2—Steam Driven Hydraulic Pumps, 15 and 30 GPM, 3000# and 5000#; 5—Oil Gear Pumps 3000# psi 3-HP. BRILL EQUIPMENT COMPANY, 225 West 34th St., New York 1, N. Y.

FOR SALE

2 Thropp two-roll 30" mills; 7 Jktd double Arm H.D. mixers 50/150 gal; Presses: 1 Stokes "R", 7 Stokes "RD-4", 4 Colton #2. Also grinders, filters, kettles, tanks. PERRY EQUIPMENT CORP., 1529 W. Thompson St., Phila. 21, Pa. PHONE: STevenson 4-1515.

HYDRAULIC PRESSES BUILT to specifications for Plastic Items. Record Presses, producing two per min. We have in the used equipment (1) 1000 ton, 30 x 30, 20" ram, 14" stroke, 24" day-light. (1) 400 ton, 22 x 30, 16" ram, 18" stroke, day-light 36". (2) 200 ton, 42 x 46, 12" ram, 36" stroke, 48" day-light. (2) 30 ton, 11½ x 11½, 10" ram, 10" stroke, 3 post downward acting, self-contained. Sal's Press, 386-390 Warren Street, Brooklyn 2, New York, MAin 4-7847.

FOR SALE

Model 28E-550 28-ounce Watson-Stillman Horizontal Injection Moulding Machine.

NEW—NEVER USED.

Standard equipment includes adjustable speed control of injection ram; open squirrel cage type motors for 220-440 volt, 3 phase, 60 cycle current; three Wheelco Electronic indicating Capacitrol instruments; heating cylinder with two nozzles and wrenches; adjustable pressure control of injection and clamping pressure. Extra nozzle for injecting Nylon.

Price will include Manufacturer's Guarantee and Installation Service. Available September or early October. Reply Box #C732, Modern Plastics.

FOR SALE: Thropp 10" x 36" 2 Roll Rubber Mill; Royle #2 Perfected Extruder; 500 ton Hydr. Molding Press 42" x 48"; Field 500 ton 25" x 30"; Francis 200 tons; 24" x 18". Also presses 20 to 250 tons from 12" x 12" to 36" x 36" & 40 ton Breaching Press. Watson-Stillman Hor. 4 pigr. 7"x2" x 4" H. & L. Pressure Pumps; HPM 1⅜" x 6"; vertical triplex 10 GPM 2700 lbs.; 7 Hydr. Oil Pumps, Vickers, Oilgear, Northern, etc., Elmes 1" x 4" & 1¼" x 4" hor. 4 pigr. 5 to 8 GPM 4500 lbs. & 5500 lbs., Elmes 2" x 6" hor. 30 GPM, 2500 PSI.; Rumsey 4½" x 8" vert. Triplex 65 GPM 900 lbs.; Elmes 2½" x 4" hor. 17 GPM 850 lbs.; Hydr. Steam Pumps; Low Pressure Pumps 150 to 600 lbs. Hydr. Accum.; Stokes type 200 Automatic Molding Press, Stokes Rotary Preform Tablet Machines 1-3/16", 1½" and ⅝", also single punch to 2"; Injection Molding Machines 2 oz. to 12 oz.; Baker Perkins jacketed Mixers 200, 100, 50, 20, 9 & 0.7 gals. capacity; New and used Rotary Cutters; Rubber Mills; Calenders, Banbury Mixers, etc.; Heavy duty Mixers; Grinders; Pulverizers; Gas Boilers, etc. PARTIAL LISTING. WE BUY YOUR USED MACHINERY. STEIN EQUIPMENT CO., 90 WEST STREET, NEW YORK 6, N. Y. WOrth 2-5745.

IF YOU HAVE GOOD HYDRAULIC PRESSES with modern pumping equipment for sale send me your specifications of same with photo, and I will see to it that you will get the best price available. Sal's Press, 386-390 Warren Street, Brooklyn 2, N. Y., MAin 4-7847.

NEW INJECTION MOLDING MACHINERY—One HPM 9 oz. Machine and Cumberland Scrap Grinder plus other equipment. Equipment operated less than 25 hours on test only. Also lot of Tenite molding material. Willing to sacrifice for immediate sale. Located in Ohio. May be inspected at any time. Equipment is on ground floor for easy low-cost removal. Reply Box #C720, Modern Plastics.

WANTED, one (1) 4 ounce injection molding press, upright or horizontal. Reply Box C722, Modern Plastics.

FOR SALE — because of process change — Two Westinghouse Industrial Type Radio Frequency Generators, 20 KW, 450 Kilocycles, 460 Volts, 3 Phase, 60 Cycles. In good working condition — used only six months. Reply Box C726, Modern Plastics.

SAVE UP TO 50 PERCENT with our low prices on brand new guaranteed tubes for your preheating equipment. Types available include 450TH-866A-872A. Write or call for quotations on these and any others. Immediate delivery from stock. U. S. Electronic Co., 262 Canner St., New Haven 11, Conn. Telephone 8-4662.

WANTED—STOKES 50-ton Automatic Molding Presses. Write, giving condition of machine, serial number and price. Reply Box C729, Modern Plastics.

WANTED: USED PLASTIC MILL 22" x 60" and used extruder #2 or #3. Must be in excellent condition. Reply Box C731, Modern Plastics.

FOR SALE—3M Spools approximately 8M lbs. of unused black vinylite binding 1/16" wide. Will sell at current price of black vinylite scrap. Reply Box C714, Modern Plastics.

AVAILABLE for immediate delivery large quantity of reground Clear Methyl Methacrylate at low price. No dealers. Reply Box C716, Modern Plastics.

SARAN FILM, Type M, 225 gauge x 16" x 100", unslit, 3500 lbs. $0.50/lbs.; Sheet rubber, 1/16"x36", 1000 yds. $1.50/yd.; 1/64"x 36", 900 yds., $0.55/yd.; Neoprene cloth, 36" wide, 1000 yds., $1.00/yd.; Ethyl cellulose strippable metal-sealing compound, 6000 lbs., $0.08/lb.; Clear vinyl tubing, ⅜", 11,900 ft., $0.015/ft.; Black vinyl, 13,800 lbs., $0.25/lb.; Rubber, uncompounded, 5000 lbs., $0.17/lb. Reply Box C727, Modern Plastics.

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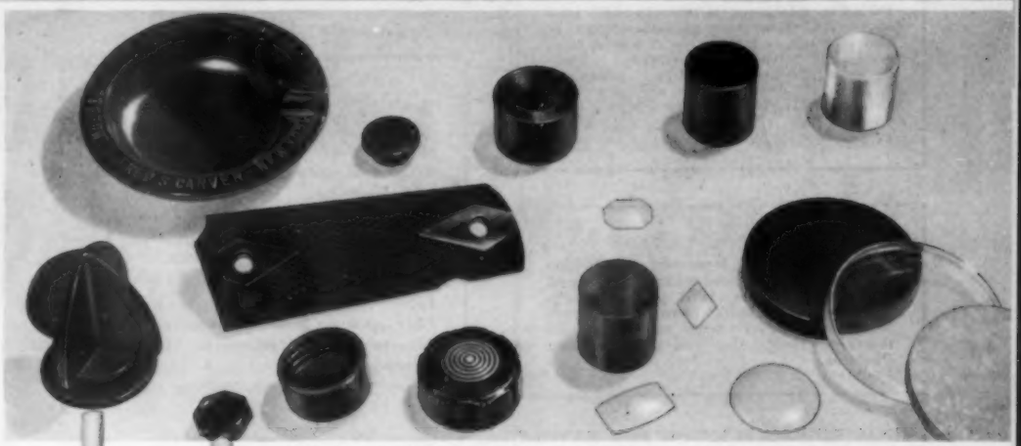
THE CARVER LABORATORY PRESS

Examples of Research and Development Work Done on the CLP

• Molded Pieces with Metal Inserts.



• **Plastic Molding of Thermosetting and Thermoplastic Materials.** Molding samples, production and color control work, testing single cavity molds, etc.

Synthetic Rubber Molding, Vulcanizing, etc.

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The Carver Laboratory Press as illustrated above with hot plates is standard equipment for plastics research, molding and development work.

All of the items shown on this page were produced on the Carver Laboratory Press by users. In addition to these useful applications, the Press is used in the plastics industry for Drawing • Embossing • Plastics instruction and demonstration • Tensile testing • Testing compressive properties • Shear tests • Flow tests • Crushing and breaking tests • Determining heat cycles, etc.

• Mounting Metallographic Specimens

The Carver Press provides complete range of temperatures from room temperature to 400°F. Adjustable by thermoswitch to within plus or minus 2°F. Equipped with accurate 6" gauge, providing load readings up to 20,000 lbs. Low pressure gauges optional. Carver Standard Accessories include Electric or Steam Hot Plates; Electrically Heated and Water Cooled Hot Plates; Carver Test Cylinders; Swivel Bearing Plates; Cage Equipment, etc.

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HYDRAULIC EQUIPMENT
343 HUDSON ST. NEW YORK 14, N. Y.

Please send Catalog and full information about the Carver Laboratory Press, also a free plastic ash tray molded on the Press.

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WANTED: PLASTIC Scrap or Rejects in any form. Cellulose Acetate, Butyrate, Polystyrene, Acrylic, Vinyl Resin, etc. Also wanted surplus lots of phenolic and urea molding materials. Custom grinding and magnetizing. Reply Box 318, Modern Plastics.

POKER CHIP MOLDS (2) 100 and 60 cavity, chromium plated, compression flash type semi-automatic, equipped with steam plates. Produces interlocking chip, excellent condition. Write for samples and price. EAGLE ELECTRIC MFG. CO., INC., 23-10 Bridge Plaza So., Long Island City, N. Y.

MOLDS FOR CANADA

Well rated firm interested in discontinued molds suitable for 8 oz. Reed Prentice machine. Will pay in U. S. dollars. Household items preferred. Will not interfere with your domestic market. Reply Box No. C677 Modern Plastics.

STOCK MOULDS WANTED FOR EXPORT of Novelty Jewelry Boxes suitable for pearl necklaces and rings preferably unassembled as broken from moulding runners. Write or Telephone Hyman Gilbert Export, 20 Vesey Street, New York 7, N. Y. RE 2-7581.

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Model Power Speedboat
Length 21" — Beam 5¼"

Authentic detail is accurately and beautifully reproduced.

The complete set of injection molds for this famous boat is offered for sale. Complete tooling for the motor and all assembly fixtures are available.

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For Toys, Combs, Buttons, Novelties, Baby Items, Etc. To fit Reed Prentice or Leominster 8 Oz. Machines. For Usage in Latin American Country. Write full particulars, preferably with samples.
SENTINEL PRODUCTS, INC.
386 - 4th Ave. NYC 16 MU 3-9344

CUSTOM MOLDERS WANTED who have one and two ounce fast acting injection molding machines—Steady work, small parts. Write giving complete information of equipment. Box No. C715, Modern Plastics.

LARGE, LONG - ESTABLISHED Eastern Plastics molding firm interested in obtaining full time services of sales representative for State of Ohio. Technical knowledge or engineering background required. Custom-molded products for industry by compression, transfer, extrusion, injection. Fine contact for the right man. Reply Box C710, Modern Plastics.

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WANTED: PH. D. for research in the field of plastics. Some industrial experience preferred. Southwestern location. Write R. R. Couch, Research and Development Department, Phillips Petroleum Co., Bartlesville, Oklahoma.

PLASTIC MOLD DESIGNER

Must have at least seven years experience on injection mold design, and be capable of making own working drawings, estimating costs of molds, purchasing and expediting them thru job shops and our own tool room. This is not a foreman's job and has unusual opportunities for further advancement in a growing Chicago area injection molding plant. Starting salary $6000 to $7500 depending on ability and experience. Reply Box No. C723, Modern Plastics.

CUSTOM EXTRUSION REPRESENTATIVE wanted by small but progressive manufacturer, to sell on commission basis. Prefer a man already selling allied non-competitive line. Replies held in strictest confidence. Reply Box C730, Modern Plastics.

YOUNG MAN EXPERIENCED in managing completely equipped tool, die and plastic shop. Full charge. Necessary to solicit work and produce same. Small investment required. Teller Engineering Co., 225 Pico Blvd., Santa Monica, Calif.

WANTED

PLANT MANAGER FOR LARGE EXTRUSION PLANT

One of America's largest volume operations in the extrusion field is adding additional items requiring experienced extrusion man of high calibre. Pay commensurate with background. Opportunities unlimited.

Reply Box C622 MODERN PLASTICS

EXECUTIVE ENGINEER — Under 40 — Desires Management, Engineering, or Plant Supervision. Now head of Production Development Department of leading midwest molder. Well rounded background Transfer and Injection engineering, production, material handling, etc. Salary — open; AND assurance of housing for small family. Two weeks notice necessary. Prefer midwest location. Reply Box C717, Modern Plastics.

AVAILABLE — ENGINEER, Product Designer. Experienced on Consumer products, novelties, toys. Can modernize or redesign to cut costs. Wide experience in part and assembly drawings, injection molds, die casting dies. Permanent or part time. Reply Box C713, Modern Plastics.

AVAILABLE — CHEMIST with master's degree, excellent background in formulation, processing and fabrication of vinyl sheet, film, tubing, etc. Thoroughly familiar with injection and compression molding, extrusion, calendering and solution coating. Reply Box C721, Modern Plastics.

MOLD DESIGN ENGINEER

Over 9 years injection and compression experience. Presently employed by large molding concern as head of mold and product design department. Seeks similar connection with progressive molding company. Kindly contact, Box C725, Modern Plastics.

POSITION WANTED — Plastics Engineer, Age 48. Excellent personality, capable of mold designing, research and management in Plastic Plant. Reply Box C728, Modern Plastics.

X-RAY AND FLUOROSCOPIC examination of plastics in your own plant if located in N. Y. area. Reveals shrinkage, insufficient material, uneven distribution of fibrous material, alignment of metal inserts and metallic inclusions. Particularly useful for eliminating small metallic inclusions in phonograph record biscuits. PORTABLE X-RAY SERVICE, 98-120 Queens Blvd., Forest Hills, L. I., New York.

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Sales Representative, New York, specializing in 5¢ to $1.00 items for big Chain Stores and Jobbers, desires to contact manufacturers or molders of Plastic Specialties, Housewares, Toys, Notions, Stationery or Novelties. Backed by 20 years experience and an extensive following. I can assure you of volume distribution. Commission basis. Reply Box C724, Modern Plastics.

SOLE AGENCY for purchase and sale wanted from reputable American Manufacturer in Chemical Trade including technical novelties or Patents for exploitation in United Kingdom and Central Europe. Hugo Loeb, 4 Buckley Road, London, NW6.

RESPONSIBLE MANUFACTURER DESIRED TO MOLD, promote and distribute a complete NEW line of plastics products protected by a group of interrelated patents now issued or pending. Sensational new products are guaranteed sales boon to manufacturers and bottlers merchandising fluids in 2 to 5 quart glass bottles and jugs. A tremendous distribution is available to the maunfacturer who can qualify under this offer. Prefer to deal with large manufacturer who has modern molding and fabricating facilities and a live, reputable sales organization conversant with the bulk glass bottling field. Reply Box C734, Modern Plastics.

WANTED: MOLDS (all items) and Machines: Injection, Transfer, Extruding. Can act quickly and pay cash if you describe fully naming: Maker, Serial Number, Age, Condition, Capacity, Where seen, Lowest Price, and also Wt. of molded part or picture of piece from molds. Are samples available? Reply Box C733, Modern Plastics.

CHEMIST WANTED — plastics chemist, experienced in compounding and application of diversified materials for processing primarily by extrusion and molding. Starting salary $6000. Location northern New Jersey. Send full resumé of qualifications and experience to Box C735, Modern Plastics.

INJECTION MOULDING MACHINE FOR SALE—4 ounce DeMattia—Perfect running condition. Also Grinder, like new.

BRAUN BUTTON MFG. CO.
26 West 17th St., New York 11, N. Y.

MODERN PLASTICS

Published by Modern Plastics, Incorporated

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Effective Jan. 15, 1948

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It may be that you shouldn't *expect* your advertising to produce a large volume of inquiries. Or to make immediate sales. There are many other important objectives which your advertising can accomplish. The important thing is to know, not only your markets, but what your prospects want to know about your product or service and your company. And then tell them — quickly, clearly, *completely*.

You don't have to bait Modern Plastics readers with "cute" devices or irrelevant pictures. The Modern Plastics subscriber is generally interested in getting right to the meat of your message without wasting time on the sauce. He'll read your message if the headline promises to tell him something he wants to know, and if the copy fulfills that promise.

There's a pretty interesting little booklet which has helped hundreds of business paper advertisers sell a lot more goods for their advertising dollars. It's called "Hit The Road," and it's put out by The Associated Business Papers, 205 East 42nd Street, New York 17, N. Y. If you haven't read it, drop them a card and they will send you a free copy.

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MOLD BY LIBERTY FOR PIANO ACTION UNIT

AWARD WINNER

7th Modern Plastics Competition

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The "L" shape pieces are known as "whip lifters". They are made in a mold machined and engineered by Liberty Tool and Machine Company.

The "whip lifter" is a component of the Pratt-Read piano action which won the top award for musical instruments in the 7th Modern Plastics Competition for the proper application of a plastic and for smooth, easy operation.

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a "sharp" job well done

on Impco MACHINES

. . . *for* Pratt, Reed and Company

. . . *by* Consolidated Molded Products Corporation

Outstanding molders the country over are selecting Impco Molding Machines because of their ability to produce quality products in quantity at low cost.

Whether you want *Awards* or *Rewards* it will pay you to investigate Impcos—for injection-compression, straight injection, compression or transfer molding. Let us send a representative.

MP-17

PLASTIC MOLDING MACHINERY DIVISION

Improved Paper Machinery Corporation

NASHUA, NEW HAMPSHIRE

Below is the Impco Type VF machine. It may be used for:

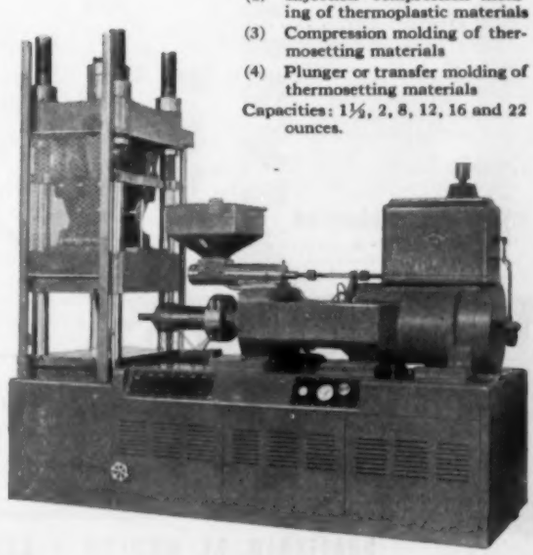
(1) Straight injection molding of thermoplastic materials

(2) Injection - compression molding of thermoplastic materials

(3) Compression molding of thermosetting materials

(4) Plunger or transfer molding of thermosetting materials

Capacities: 1½, 2, 8, 12, 16 and 22 ounces.



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A BRESKIN PUBLICATION

MODERN PLASTICS

PUBLISHED BY MODERN PLASTICS, INC. • 122 EAST 42nd STREET, NEW YORK 17, N. Y.

NOW!

Better, more versatile rubber available in rod and tube

EXAMPLE:
Fountain pen manufacturers chose hard rubber over other materials when it fulfilled the exacting requirements of feed rod action and durability.

New developments in synthetics, natural rubber and blends of both have enabled our chemists to assemble a backlog of compounds to meet more strenuous and exacting specifications than rubber ever met before. Fountain pen manufacturers, for instance, were able to pick a compound that gave them the exact capillary action in the feed rod needed to assure an ever-ready flow of ink.

Many manufacturers have solved design and production problems by taking advantage of hard rubber's good machining qualities and stability when in contact with oil, water, heat, cold and changing temperatures. Hard rubber is tough and resilient. Over-all, its physical properties are high. Alkalies, most solvents and acids have no effect on it. The new hard rubber finishes to a really lustrous, polished ebony. And it usually costs less than other materials being considered for the same job.

Complete service

We have the research and engineering setup to help you select the right compound for the job and the modern equipment to follow through with deliveries that meet specifications. Our laboratory carries on a three-fold program that includes pure research, industrial application and product quality control. As a result, our engineers are able to suggest new materials as they are developed by our laboratories or suppliers. And when a problem of price, supply or other emergency exists, they are able to apply the best substitute available.

Please put us on your inquiry list

The next time you need hard rubber rods or tubes, or have a spot where you think either might be used, we would appreciate being called in. We might have just the right compound for your job. We manufacture rods and tubes in rough, ground or polished form in a wide range of sizes. And there's also a good chance that our experience and facilities for large volume production will enable us to fill your needs at reasonable cost.

VULCANIZED RUBBER AND PLASTICS COMPANY
Manufacturers of Rubber and Molders of Plastics
4 E. 29th Street, New York 16, N. Y.

3 DIMENSIONAL ART IN PLASTICS

—IS A PATENTED PROCESS OF THE GITS MOLDING CORPORATION. THIS PROCESS PRESENTS A TOTALLY ENCLOSED, THREE DIMENSIONAL EFFECT OF CRYSTAL BEAUTY. NAME PLATES, DIALS, TRIM, INSIGNIA, COUNTER DISPLAYS, TRADE MARKS, MEDALLIONS, EMBLEMS, SIGNS, ESCUTCHEONS, PLAQUES, BUTTONS, ORNAMENTS, CONTAINERS, STATIONERY AND DESK PRODUCTS, GAME PIECES, HANDLES, KNOBS, DRAWER PULLS, DOOR PLATES RESULT IN INCREASED VALUE AND EYE APPEAL WITH THE CRYSTAL SEAL PROCESS. QUALIFIED MOLDERS ARE BEING LICENSED UNDER PATENT NO. 2,354,857.

Infringers will be vigorously prosecuted.

Crystal SEAL GITS

GITS *Molding Corporation*
4600 West Huron St., Chicago 44, Ill.

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MODERN PLASTICS CLASSIFIED ADS GET RESULTS!

Classified advertisements in MODERN PLASTICS are an effective, inexpensive means for buying and selling used plastics machinery, hiring personnel, finding employment and establishing business contacts. These concise notices are read carefully each month by people with specific wants—that's why they get so many "live" responses.

Here are some typical results from recent MODERN PLASTICS classified advertising:

FOR SALE: 1½" extruder	15 replies
WANTED: 2 or 4 oz. injection machine	7 replies
WANTED: Plastic scrap	23 replies
SITUATION WANTED: Sales executive-engineer	8 replies
FOR SALE: Used molds for children's toys	20 replies
WANTED: Manufacturers' representative	8 replies
HELP WANTED: Molding plant supervisor	6 replies
FOR SALE: Plastic advertising and manufacturing novelty business	8 replies

Results like these occur month after month. Rates are surprisingly low and mail box and forwarding service are available at no extra cost. Refer to the Classified Advertising pages at the back of this issue for complete details.

ABC ABP

MODERN PLASTICS
A Breskin Publication
122- East 42nd Street New York 17, N. Y.

IDEAS Come with
MACOID made
DRY PROCESS PLASTIC EXTRUSIONS *
The switch from metal to plastics has accomplished marked savings. At the same time, product-improvements have resulted.
In the field of product re-design, ideas by MACOID engineers have brought about a long list of economies and improvements.
You, like many other manufacturers, may have been considering plastics' inherent properties for the improvement of your product. Let ideas by MACOID engineers help you accomplish this. Just finish and mail the letter below.
* MACOID originated dry process plastic extrusion in 1936 for the automotive industry.
ALSO INJECTION MOLDING
YOUR LETTERHEAD
YOUR ADDRESS
Detroit Macoid Corporation
12346 Cloverdale
Detroit 4, Michigan
Dear Sirs:
Tell us how the following (described or illustrated herewith) can be made to our advantage by your dry plastics extrusion process.

Courtesy Westinghouse
Electric Corporation

Plastically Speaking,

A "HOUSING PROBLEM" IS SOLVED

for Westinghouse

When Worcester Moulded teamed with Westinghouse engineers on this plastic "housing project," the result was another Westinghouse success. The time-tested skill and experience of our die designers, die makers, moulders and finishers utilizing our huge moulding facilities produced the exact effect desired — an eye-appealing, lightweight, precision-built cabinet in quantity. Because of our extensive facilities, we are able to keep up volume production to dovetail with that of Westinghouse.

This example of close co-operation is duplicated daily in our plant. Many manufacturers have come to consider us as the plastics department of their own plants. Call on us for your housing or any other plastic problems.

Custom Injection Moulding

WORCESTER MOULDED PLASTICS CO.

14 HYGEIA STREET, WORCESTER 8, MASS.

17 East 42nd St., New York 17, N. Y.

130 West Chippewa St., Buffalo 2, N. Y.

A Transformation in Transformers!

What happened when Lionel Corporation adopted BAKELITE Phenolic diced molding material for this new Lionel transformer?

It achieved light weight, permanence of finish, impact strength, tensile strength, heat resistance, moisture resistance, high dielectric strength, compact design, simplified production, and *low initial cost,* in a housing of unprecedented good appearance!

A better product appeals to everyone. So it is not surprising that Lionel reports that its new transformer has opened new markets... is finding uses other than for toy trains for which it was originally designed!

Literally thousands of manufacturers have much the same story to tell... of products and parts, large and small, transformed into something better, more serviceable, lower in cost, and more attractive, through the skillful use of BAKELITE Phenolic Plastics.

Ready at all times to help you select the proper plastics for cost savings and quality improvement in your products are Bakelite Corporation representatives located from coast to coast. You'll find them well acquainted with manufacturing problems in your own field. Call them in for consultation. Write Department 9.

NATIONAL PLASTICS EXPOSITION
1948
GRAND CENTRAL PALACE NEW YORK
SEPT 27—OCT 1

Bakelite TRADE-MARK *Phenolic* PLASTICS

BAKELITE CORPORATION

BAKELITE CORPORATION, *Unit of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N. Y.

• ENGINEERED IN PLASTICS BY GENERAL ELECTRIC

A kitchen molded in plastics

• Here's a miniature all-plastics kitchen! General Electric molded these attractive scale models of its appliances —refrigerators, ranges, dishwashers—even tiny clocks and toasters—to serve as visual selling tools for their retailers. By arranging the models according to planned layouts, customers can see how their new kitchen or laundry will look, before it is installed.

Could plastics help sell *your* products? General Electric's complete plastics service is equipped to design, engineer, and mold *any* type of plastics product to your specifications. Whatever your plastics requirements—scale models or refrigerator parts—it will pay you to consult with General Electric, one of the world's largest manufacturers of finished plastics products.

Write us for more information, or contact your nearest G-E sales office. We'll be glad to send you, free, the interesting color-illustrated booklet, "Problems and Solutions in Plastics." Address: Plastics Division, Chemical Department, General Electric Company, 1 Plastics Ave., Pittsfield, Mass.

G-E COMPLETE SERVICE— AT NO. 1 PLASTICS AVENUE

Backed by 54 years of experience. We've been designing and manufacturing plastics products since 1894. General Electric research facilities have expanded continually, working to develop new materials, new processes, new applications for plastics parts.

No. 1 Plastics Avenue—complete plastics service—engineering, design, mold-making. G-E industrial designers work with our engineers to create plastics parts, sound and good looking. Skilled mold-makers in G-E toolrooms average over 13 years experience.

All types of plastics. Compression, injection, transfer and cold mold facilities...high and low pressure laminating . . . fabricating. G-E Quality Control—a byword in industry, means as many as 160 inspections and analyses for a single plastics part.

EVERYTHING IN *Plastics*

GENERAL ELECTRIC

CD48-A39

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